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PC PILOT

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VFR Photographic Scenery

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Matrox Parhelia & Multiple Screens

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Forgotten Battles

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Strike Fighters Project 1

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THE DAM BUSTERS

FOR MICROSOFT® COMBAT FLIGHT SIMULATOR 2 & FLIGHT SIMULATOR 2002

BOMBER COMMAND'S MOST FAMOUS SQUADRON TAKES TO THE SKIES IN COMBAT FLIGHT SIMULATOR 2 AND FLIGHT SIMULATOR 2002

Get the Lancaster lined up on the towers of the dam, stay at 60 feet above the water, avoid the flak and drop your Upkeep mine

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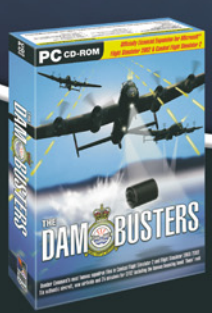

On the night of 16th May 1943 nineteen specially-adapted Avro Lancasters led by Wing Commander Guy Gibson and crewed by the cream of Bomber Command, took part in the most famous raid of WWII on the dams that checked the waters of the River Ruhr. Their skill and bravery have gone down in history and even today 617 Squadron is called The Dam Busters. Now you can follow their exploits in CFS2 from the famous bombing of the dams with the Upkeep 'bouncing bomb' to the sinking of the Tirpitz. FS2002 pilots can enjoy the flying experience of these amazing machines and also visit the authentic scenery areas. Dim the lights and get two fried eggs on the stove!

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PC PILOT

THE CREW

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SUBMISSIONS

We will gladly accept and review for publication any letters, articles, photographs or other contributions. We cannot guarantee publication nor, regrettably, return items sent to us or be responsible for their loss. We will try and reply where possible. Any letters are assumed suitable for publication unless we are otherwise notified.

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Better bi-monthly than bland!

Editor's letter

Christmas is coming, the magazine is getting fat! Christmas, so the saying goes, comes but once a year, but it never ceases to amaze us how craftily it manages to creep up on the unwary, despite the appearance of Christmas trees and polystyrene snow in the shops from early August. Way back in the balmy days of summer (you remember – the two warm afternoons we had in May), we decided that for Christmas we'd treat our loyal readers to a bumper edition of PC Pilot to keep you occupied over the holiday.

We've included plenty more editorial pages in this Christmas number, at no extra cost, and without having to make all the pictures bigger! There's some fantastic stuff on the CD, a great competition, a bursary for a younger reader and, as they say, lots more besides. We hope you enjoy it and agree with us that content rather than frequency is the way to go.

On an entirely different subject, the debate about scores for product reviews has reared its ugly head again. Fierce debates have been raging in the PC Pilot offices, sparked by reviews of CFS3 and Strike Fighters, about how products should be scored and, even more radically, if they should be scored at all. My personal view is that scores are only of interest to publishers, and that a set of Pros and Cons will tell readers far more than 3/5 or 4/5, which the majority of products score.

If the text says "…fantastic program, brilliant, innovative etc." and the score says 3/5 or 4/5, the publisher assumes that we have probably not even opened the box and are treating them unfairly. Likewise, if we give something 5/5 and it turns out that the magneto switch is the wrong colour, we're damned as lackeys of the publisher who are obviously collecting brown envelopes stuffed with cash in return for our distorted review. Of course, we could start scoring out of 100%, but if anyone can explain the difference between an 81% product and an 89% product I'll be fascinated to hear why 4/5 (or 8/10) wouldn't describe both of them just as well. That's a personal view, however, and we'd be interested to hear your thoughts on the subject.

No editorial would be complete without a rant (sorry, an aside) about the sims mentioned earlier, Combat Flight Simulator 3 and Strike Fighters Project 1. The reception for CFS3 has ranged from the wildly gushing to the deeply critical and, without spoiling the surprise, you'll find that our review falls into neither of these camps. It's obvious that Microsoft has changed the philosophy behind CFS3, but although it's very 'gamey' it's still a long way from a dumbed-down sim designed to make money on Xbox. Time will tell if it does the numbers, but it looks as though IL-2 is going to give Microsoft a real run for their money.

Meanwhile, over in the featureless post-nuclear wasteland below the beautiful Strike Fighters aircraft, all is not well. We thought the days of hurried releases were a thing of the past, but Strategy First seems to be bucking the trend. Once again the finance department has overridden the developers and pushed a product out to an unfortunate public before it's ready. Twice! We've reviewed the second US release, patched up after the disastrous Wal-Mart version, but this is still a long way from finished. The good news is that if you like the look of this fast jet sim and can wait until February 2003, the 'third-time-lucky' release from Just Flight should be pretty much flawless. Strategy First has demonstrated that a hasty release is exactly the way to turn a potential Falcon-beater into a flop in just three months. Hopefully the UK version will redress the balance, but this may well come too late to save what could have been the sim of the year.

On a final note, as is traditional at this time of the year, we can look back at 2002 and raise a glass to some excellent add-ons for FS2002, a rise in the popularity of the ever-evolving X-Plane, and IL-2 taking the victor's crown when it comes to combat sims. We've been amazed at the exceptional quality of much of the freeware available, and our grateful thanks to all those authors who have allowed us to share their outstanding creations with you. We can mourn the passing of FS2000, which disappeared a lot faster than FS98, and look forward to a New Year that promises Forgotten Battles, more VFR scenery, CFS3 add-ons, Lock On and who knows what else. Will another standalone civil sim finally see the light of day? Flight simulation is undoubtedly in a better state than at the beginning of the year, and thankfully this trend looks set to continue.

Thank you for flying with us in 2002 and we look forward to having you aboard during 2003! Your support has been very much appreciated during the three years we've been publishing PC Pilot, and very best wishes from all of us for a peaceful Christmas and a great New Year.

Dermot Stapleton

Managing Editor

COMMS

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Trouble developing?

FROM: 'A developer'

So, CFS3 is here – but does it do what it says on the box, i.e. simulate? In my opinion, not well enough. Having played (note my use of the word 'played' rather than 'flown') CFS3 for a short while now, I have come to the conclusion that Microsoft has moved away from the simulations that CFS and CFS2 were, and gone much more in the direction of a game. I am not sure that this is exactly what Microsoft ordered, but it certainly seems to have gone that way. The only parts of CFS3 remaining from CFS2 appear to be the flight model side of things; all the rest is brand-new. A look at the folder structure tells us that all the friendly, well-browsed files and folders that we have all learnt to manipulate are gone.

If you are able to get CFS3 to run well on your PC, and lots of people are reporting that they can't, then on the surface Microsoft appears to have done well – great graphics, jet aircraft for the first time, and a campaign in which your career pilot can make a difference. But if you look under the surface, several things are missing; there's no global scenery, the AI bomber aircraft glide-bomb, and there are no ships to land on or take off from.

What's the problem with that, then? On the face of it, nothing really – at least not for a short time. You will fly CFS3 for a while, then perhaps look around to see if there are any add-ons to be had, be they freeware, shareware or commercial. I think there will be a lot fewer than we have seen for earlier versions, because even though CFS3 is designed as an 'open architecture' sim (i.e. the open code allows add-ons to be created), any potential add-on will have to be located in the European theatre, add-on bombers will dive down and bomb the target rather than level-bomb, and no facility will be available for carrier operations.

A thing of the past?

I can understand why only European scenery is included, but not allowing level bombing for the AI bombers' wingmen is unforgivable, and the absence of the facility to employ aircraft carriers is lamentable. The fact also remains that, unless the add-on that you bought last week was created using gmax, then there is no way it will run in CFS3; to be fair, though, that is old news.

Looking at CFS3 as an add-on developer, my options seem very limited and I can't help thinking that CFS3 was published to meet a deadline, and would guess that the day-to-day development team are disappointed by this. Personally, I would have preferred to wait however many months might be necessary before seeing the best combat sim around released. It is an opportunity missed.

I am sure that it will sell well, but I fear that the CFS ship has sailed on and that quite a few loyal passengers have been left on the dockside.

We reply:

While we can understand the sentiments expressed here, it's fair to say that add-on developers are likely to approach the new arrival with slightly different priorities to those of the enthusiast. Should Microsoft be expected to make sure that their new creation provides developers with add-on opportunities, or to concentrate principally on providing a new experience for combat fans? We've all enjoyed the extra combat opportunities that add-ons provide, but are also aware that Microsoft is by no means obliged to please any external developers. Perhaps the problem is one of perception. Calling this latest release Combat Flight Simulator 3 does tend to imply that there is some continuity in an apparent series comprised of the first two releases and the latest program. Had CFS3 been named differently, as Tactical Air War, for example, and been presented simply as a standalone sim with no nominal similarity to its predecessors, who would feel justified in bemoaning the differences between this and any previous releases? Your comments, as always, are very welcome.

FROM: S. Harper

I was ready to post the following letter off when the November/December issue of PC Pilot dropped through the letterbox. Lo and behold! The SF.260 was featured. May I make a plea to those more competent than I to produce, with an appropriate installation program for FS2002, an aircraft based on an Italian design of the 1950s era known as the Falco. This aircraft was designed by Stelio Frati and, I believe, was in production for a short period for the Italian Air Force, its big sister being the famous SF.260. It has been sold worldwide in recent years for the home-builder by the Sequoia Aircraft Corporation, based in Virginia, USA (www.seqair.com). A number of these beautiful aeroplanes have been built in this country.

FROM: Shawn Tierney

I'm writing to ask a small favour. I've been a PC Pilot for about two years now, and when I'm old enough I'm hoping to join NUAS (Northumberland University Air Squadron) to fly the Grob Tutor. I was wondering if you could release a Grob Tutor in one of your issues – it would be a great help to all Air Cadets to train with it.

We reply:

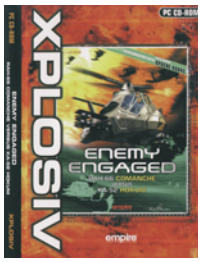
We were surprised to find that no one has yet modelled the 'Ferrari of the air' for FS2002 – our quick search only turned up numerous Falcons! As you say, the Falco is a splendid aircraft, and so hopefully it's only a matter of time before an FS version becomes available. Likewise with the Grob Tutor; there must be many Air Cadets who'd enjoy a virtual version. If anyone knows anything about forthcoming projects, drop us a line.

FROM: P. Brown

Congratulations on another superb issue – not only for the great mag but the CD too. I've been waiting for you to include the SP3 upgrade for some time, and I knew it would eventually arrive if I was patient. So now I've dusted off my Falcon 4 disc. Now all I've got to do is be patient for Lock On to arrive too. I just happened to stumble across a budget helo sim called Enemy Engaged Comanche vs Hokum – probably the best helo combat sim to ever hit the PC. I have to mention the incredible dynamic campaigns. If only the new sims could ditch the single missions and boring campaign structure and give us something along the same lines. Let's hope they deliver a campaign that gives you the incentive to succeed... or face the consequences.

We reply:

Glad you enjoyed the latest issue. When we reviewed Enemy Engaged vs Comanche Hokum our reviewer gave it five stars and the score was mainly based on the flight model and dynamic campaigns. We're glad to hear that it's still being enjoyed, and pleased that it's still available (£9.99 from Xplosiv – www.xplosiv.net). It would seem that Microsoft agree with your comments on campaign structure – the dynamic campaign in CFS3 look set to be one of its most enjoyable features.



Enemy Engaged – still cutting the mustard

FROM: Peter Dungan

In World Airports there are various support vehicles around the aircraft, i.e. catering trucks, baggage handlers, and refuelling lorries. Can you control these vehicles to go to any aircraft at any gate, and control the duration of the turnaround?

Wolfgang Schwarz (SimFlyers) replies:

The 'Service Armada' (as we call this feature) is available at nearly every gate of the airports. However, these vehicles don't actually move. When triggering a certain frequency (to indicate your aircraft) they will be there, positioned around your aircraft according to its type (so they are placed differently depending on whether you're flying a 737 or a 747 – or anything else).

As this feature is available at each parking stand, we haven't been able to actually make them move. There are too many paths for too many vehicles in too many settings to consider – but we think it looks good anyway.

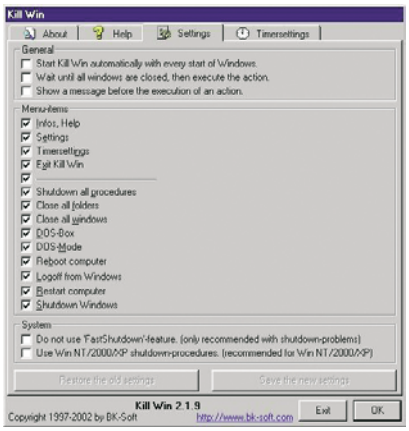
You can download demo versions of all the airports included in World Airports from our website www.simflyers.net (or try those included on the cover CD). Check the documentation to learn how to operate the active features; they are included in the demo versions. This should give you a pretty good impression about how it looks, the frame rate, and so on.

FROM: Monty Staddon

I thought readers might be interested in the following tip, which will make their sims run much more smoothly. I only have an 850MHz CPU, which leaves a lot to be desired when flying FS2002 with add-on scenery and planes. I upgraded the RAM to 512Mb, which made an enormous difference, but the icing on the cake came when I discovered KillWin v2.1.9. This little program sits in the taskbar, and before I launch FS2002 I right-click the KillWin icon then click 'Close down all procedures'. Seconds later I launch FS2002 and the improvement is really fantastic, with the CPU practically devoted to the job in hand. Interested persons can find it at www.borgking.de/bk-soft/killwin.htm. I have had no problems with it under Windows ME and can strongly recommend it for increased simming pleasure.

We reply:

Thanks for the tip. Another popular program we use for the same purpose is EndItAll 2, called a "True Killer App" by PC Magazine.

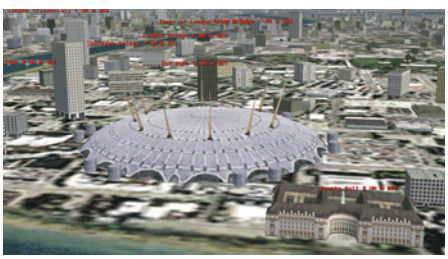


FROM: Roland Wagner

After having progressed from the original FS4 via the various revised versions to FS2002 Pro, I have become more than ever immersed in the inner workings of FS programs. Now that my son has given me for my 81st birthday a subscription to your excellent magazine, I am hooked, amongst other things, on your recent article about gmax graphics for producing one's own scenery. My first, very optimistic effort will be to place my family's houses in their correct location so I can land the helicopter in their gardens! However, one thing haunts me about FS2002. Is it possible to put the Millennium Dome, positioned at present where the London Eye should be, at its correct location? I could then have a go at doing the London Eye and put that in its place. Has anyone got any ideas?

FROM: John Bates

Having scouted around for reviews of FS2002, I have yet to find one that mentions the error in the London scenery that puts the Millennium Dome in the wrong place! Rather than being in Greenwich, it appears to be at the end of Westminster Bridge! Does anyone know of a fix that can move it to where it should be?



Right label, wrong place

Freeware authors restore order in the Capital

We reply:

Thank you both for your mail. No one has mentioned this since FS2002 was released nearly a year ago, and then we receive two mails on the same day about it! The review of FS2002 in Issue 14 points out this rather obvious error.

A recent mail from Frank Allen, one of our readers, extolled the virtues of some freeware files which should make the South Bank look considerably more realistic. Oliver Minchin's canaryv1.zip package places the Dome in its correct position (and adds buildings to the Canary Wharf development), while Ralph Pegram's se1v1.zip adds the London Eye (illuminated at night), and the Shell Centre and Waterloo station in their correct locations. A search for the authors' names on the major freeware sites should find the files without any trouble.

Another option is the new VFR Photographic Scenery (reviewed on p.28) which includes everything you can see from the air, correctly positioned in FS2002.

Non-fiction:
The Battle for Europe 1943

Unless you were actually there, you've never seen WWII like this. Extreme low flying action, realistic land targets and genuine war missions. You're going to use planes like the P-47 "Thunderbolt", the Fw 190 and the Hawker Tempest V to stop the enemy's advance.

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Microsoft® Combat Flight Simulator 3 Battle For Europe

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NEWS

A320 winners

Many thanks to all of you who entered Issue 18's competition to win a copy of Just Flight's A320 Professional add-on. This was by far our most popular competition to date, and the ten winners were Malcolm Parsons, John Shere, Stephen Suddaby, J. Maunder, Colin Clarke, Hernando Jaimes (USA), S. Joyce, Jens Laureys (Belgium), Robert Strzelczyk and Lauri Tanskanen (Finland).

PC Pilot 13, 14 & 15 CD

We're sorry to report that back issues of PC Pilot 13-15 are now sold out. A new CD containing the three complete issues, and a selection of the software from the cover CDs, will be available early in the new year.

First CFS3 add-on?

The first announcement of an add-on for CFS3 came in September, when Captain Sim announced Russian Fighter Pilot, set to include the Yakovlev Yak-3 fighter (also FS2002-compatible), Lavochkin's LA-7 and the Ilyushin IL-4 bomber, the first Soviet aircraft to bomb Berlin. If it's up to the standard of their recent releases, it should be a real treat. Keep a lookout for progress reports at www.captainsim.com.

Addon Manager additions

Manfred Murer's useful FS Addon Manager, which impressed us in the last issue, has since been improved even further. Version 1.85 includes several new features, one of which is the Option Installer, which lets you add textures, repaints, sounds and so on directly from Zip files. The best tool yet for managing all your FS add-ons has just got even better! (http://fsaom.buddyshare.org)

TOP OF THE WORLD, MA!

We've always prided ourselves on our erudite and informed readership, but weren't aware that PC Pilot was included amongst the essential supplies for an ascent of Kilimanjaro. Mark Strachan, former joint MD of Domark and friend of PC Pilot, climbed over 19,000 feet to the top of Africa's highest mountain in October 2002. Domark published Harrier and MiG-29 Fulcrum back in the early 90s, and were acquired by Eidos some years back. Mark is now taking on new challenges, but still has plenty to say about the current state of flight simulation. Watch out for his Opinion in PC Pilot soon.

WAITING FOR A WARTHOG?

The Warthog fans among us were highly delighted when the Portuguese developers WebinBlue contacted us recently with details of their freeware A-10A Thunderbolt II for CFS2. It's an impressive package, which contains two versions of the aircraft – one lightweight and highly manoeuvrable version, and a fully loaded combat-ready rendition, both of which feature an impressive selection of animated parts. For those who want a real excess of firepower, there's also a fearsome weapons expansion package from Chuck Dyer available. Anyone who prefers a more sedate flying experience might be interested in the release of their FS2002 Sportster Ultralight, which is due this December. See www.webinblue.com for more details.

THE EUROPEAN SCENE

Regular flyers to Europe will be pleased to hear about Aerosoft's latest batch of new airport scenery add-ons – German Airport Selection (ten airports, £24.99), Scandinavian Airports (eight airports, £29.99), Spanish Airports (five airports, £29.99), French Airports (£29.99) and Canary Islands (seven airports, £24.99). These provide a considerable improvement to the default airports, and each package contains a variety of extras, such as detailed static and dynamic objects, airport vehicles, charts, surrounding mesh terrain and so on. Full details can be found at www.aerosoft.com. Swedish flyers might prefer to investigate the Swedflight Pro team's impressive scenery packages at www.swedflight.com.

Stockholm courtesy of Swedflight Pro

SEASONS GREETINGS!

Ruud Faber, creator of the FScene2002 Europe, and USA & Canada ground texture packages, has announced his next project, FScene Australia & New Zealand. The textures for each season of the year will be released in a sequence of four following the actual seasons down under, which will mean that we'll be able to see how the summer down under looks while we're in the middle of the UK winter. Each package will be available to download from http://home.quicknet.nl/qn/prive/rfaber at a cost of €19.00 (£12.00 approx.) per package.

THE GLORY OF EMPIRE

Proving that there's still a very healthy market for flight sims that have been superseded by more recent versions, Empire Interactive have released two new budget CD packages, under the names of Combat Flight Collection and Flight Collection. The first includes the original Combat Flight Simulator along with two complete add-on packages – Just Flight's Luftwaffe Collection (20 aircraft) and RAF 2000 (25 aircraft and 15 missions). That's a lot of aircraft for £14.99, and the Flight Collection is even more of a bargain at £9.99. This features Flight Simulator 98 and two popular add-ons – Airbus 2000 Special Edition (50 airliners) and the FlightSim Developers Concorde SST package. Both packages are available now, and initial copies even contain a voucher for a free copy of PC Pilot. The budget bandwagon rolls on, and you won't find us complaining.

RETURN TO 'NAM

Global Star Software's next releases in their Search and Rescue series of helicopter sims will be Vietnam MEDEVAC and Coastal Heroes. The latter will see chopper pilots back in the familiar Coastguard's role, flying the HH-65A Dauphin, Sikorsky SH-3 Sea King and the BK-117 C-1, while Vietnam MEDEVAC will feature the legendary UH1 'Huey' workhorse on a variety of missions, many of them behind enemy lines and under fire. Both titles should be released in the US by the time you read this, with both selling for $39.99 (£26.00 approx.) but, with SAR3 only having arrived in the UK last month, we can no doubt expect to wait rather longer before we see a release this side of the Atlantic. Keep an eye on www.globalstarsoftware.com for the promised demos of both programs.

LET BATTLE COMMENCE

If the everyday corporate cut and thrust of virtual airlines leaves you cold, then Raymond van Laake may have the answer. Raymond is the chairman of the BOTA (Battle of the Airlines) Trophy Organisation. If you've not heard of it yet, BOTA is the largest virtual air race on the Internet, in which pilots from all over the world compete against each other, using Flight Simulator, over eight weekly stages of adventure-type flights. These are not FS-generated adventures; a separate program (written in Visual Basic) monitors and controls the flight. Entrance to the race is free, and all the special software used is freeware.

BOTA was founded in 1998 as a race between pilots of virtual airlines, hence the name) and from day one it became the largest virtual air race. It continues to grow, and Raymond told us that last year's race attracted 400 entrants. Like any popular race, BOTA has attracted sponsors and there are great prizes for the winners.

The next race is scheduled for February 2003, and all the entry and prize details will be at www.planetaviation.com/virtualairlines/battle in the near future. BOTA reckons that there is a gradual decrease in the number of active VAs, and so for the next race any pilot can join in, irrespective of whether they're a member of a VA. This looks like being an exciting event, so get your stopwatch out and get ready for the off!

Real-world simulations?

A couple of recent announcements reinforce the fact that the links between simulation and real-world flight are increasing at a steady rate. Piper are now using X-Plane to allow potential customers to test-fly their range of aircraft (see www.newpiper.com, then follow the links to Fleet and Fly) and RealAir Simulations' Marchetti SF.260 is to feature as a training aid in an Australian training academy. Melbourne's Batman Tafe academy will be using the plane as an official training sim for spin and stall recovery and for VFR flying.

Southwest scenery

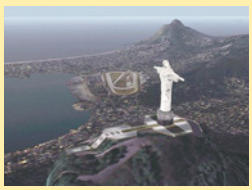
Virtual flyers in the Southwest might like to take a look at the website of Nick Ryall, aka the unusually named Captain Frufru. It's still under construction, but the freeware downloads on the site already include a series of lighthouses, landmarks in Cornwall including the Eden Project, Lundy Island off the coast of North Devon, Stonehenge and the Tamar and Clifton suspension bridges. Isambard Kingdom Brunel's famous bridge between Plymouth and Saltash even has an animated train running across it. All the scenery has been designed for use with the new VFR Photographic Scenery reviewed in this issue, and can be found at www.frufru.co.uk.

Lock On – later

A couple of issues back we mentioned that the release of Ubi Soft's Lock On: Modern Air Combat had been put back to January 2003. Recent news that a demo will be available in January or February next year would suggest that it may be even later still. Better late than bugged, as we always say, and no doubt our reviewer of Strike Fighters Project 1 (see p.38) would second that sentiment wholeheartedly. Updates as usual from www.lo-mac.com.

Wonderful Rio 2002

Real Flight Brazilian Sceneries (www.realflight.com.br), developers of the Air Shuttle Express package reviewed in our last issue, have released their Wonderful Rio scenery for FS2002. The download version ($16.00, or £10.00 approx.) includes the two largest airports in Rio – Santos-Dumont and Galeão International – as well as heliports, monuments and regional scenery, while the boxed version includes a further five airports (price TBA). Owners of Wonderful Rio for FS2000 can download the new scenery free of charge.



The missing link

If you're ever on the hunt for information about a particular aircraft type or manufacturer, using the traditional search engines can be frustrating. Type in 747 and you'll get inundated with links to travel agents and holiday companies, as well as thousands of dead ends that probably closed down years ago. However, in the words of a well known high street bank, "…it doesn't have to be like this!" Help is at hand thanks to aviation journalist Howard J. Curtis, who has put together a truly awesome collection of aviation links. Five minutes on his site at http://fly.to/airnet soon turns into five hours of fascinating browsing if you aren't careful. There are links to virtually every type of site you could think of, and Howard keeps everything pretty well updated.

Helicopter tutorials

The feedback from our recent feature on helicopter flying reminded us that there are an awful lot of virtual chopper pilots out there, all of whom could do a lot worse than head over to the HoverSafe Flying Academy. They currently have thirteen tutorials on their website, which include the use of video files and are aimed at the serious chopper sim student. While the lessons are designed primarily for FS98/2000/2002, the information should be beneficial to any chopper pilot, whatever their chosen sim. If you register with them, they'll even help you out on a one-to-one basis via e-mail. If you have the will, they say, they have the way! Get educated at http://members.shaw.ca/hoversafe/FlyingSchool.htm

HoverSafe Academy
Dedicated to the needs of the Virtual Helicopter Pilot

Planning permission

New from jb-soft (http://www.jb-soft.de) is IFRPlan v2.0, a shareware flight planner for Flight Simulator 2000/2002 that has all the features you could possibly dream of. We couldn't even begin to list them all here, so suggest you make the website your first waypoint and try out the demo version available on the site.

South of the border

We're happy to see that Mexico is looking even better than usual, thanks to FlyMex's Mexican Airports 2 for FS2002. Over 35 airports are modelled, covering the north of the country, the US/Mexico border and the Baja region. There's corrected terrain mesh for the surrounding areas, and the package also contains seasonal and night effects, more than 60 approach charts, and over 18,000 ATC voices in the Spanish Language Pack. Cost is $34.95 (£22.00 approx.) from http://www.flymex.com.mx/aptmex2engmain.htm.

New views

A handy freeware utility has just been released which adds some supplementary views to those already available in FS2002. Active Camera PRO 1.3 (from www.anticyclone.be) lets you walk (or run if you're in a hurry!) all around the exterior of the aircraft and even allows you to crouch down to complete your pre-flight checks!

Feeling adventurous?

Perfect Flight 2000 has released several new series of adventures, covering some of the world's major airlines. Volume 1 is devoted to Azzurra, a private Italian airline operating between European capitals and tourist flights to the Mediterranean, and features three aircraft, including a 737-700 and flight manual, an Adventure Compiler to allow you to create all the adventures you want, and more besides. Volume 2 moves from Italy to Germany, and includes 6 Lufthansa-liveried aircraft and an even more extensive list of features. Full details can be found at www.fs2000.org.

CLIPPER SERVICE PACK

In line with their policy of continual development for their products, Pilot's have recently released Service Pack 1, as a free download only, for B314 – The Clipper. Some new textures have been added to the interior, engines and windows, and further details have been added thanks to some new reference material being made available to the developers. The Service Pack includes other updates and a new 2D panel from Claudio Mussner, who was also responsible for the new exhaust smoke effect. If your mixture is too rich, you'll now notice the colour of your exhaust smoke turning black. Registered users can download the update from http://b314clipper.com.

FASTER! FASTER!

As part of the ongoing battle for PC speed, Intel recently announced the development of the P4 3GHz processor. This comes hard on the heels of AMD's tests with 2.8GHz, and so all this technology should soon be filtering down to a PC near you in due course. The really big news from Intel is actually not the numbers, but their HT (Hyper Threading) technology. The full explanation of what it does is the ultimate jargon fest but, put simply, it means that they can get a processor to perform more than one action simultaneously. A processor normally performs operations one after another, but the ability to do more than one thing at once is a huge step forward. CFS3 users, start forming a queue!

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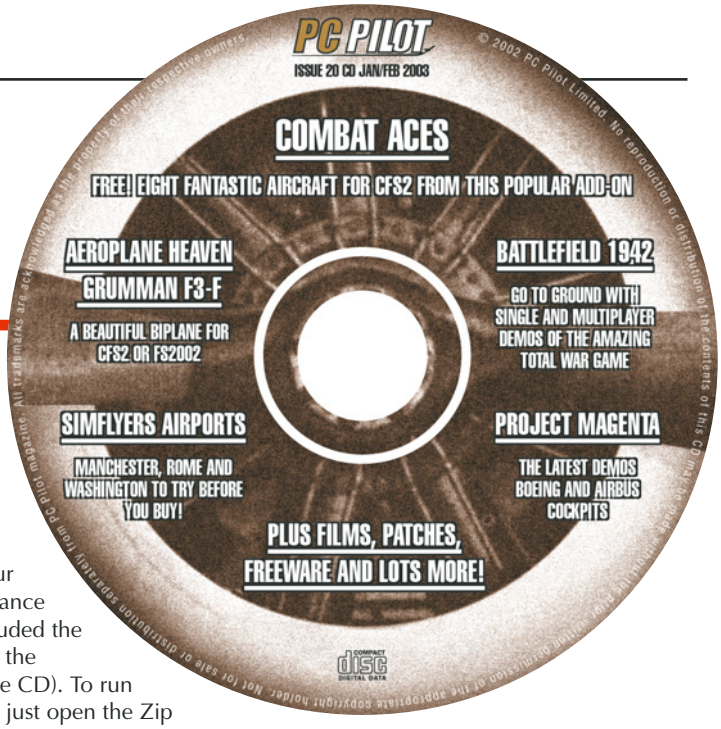
COVER CD


PC PILOT
ISSUE 20 CD JAN/FEB 2003
COMBAT ACES
FREE! EIGHT FANTASTIC AIRCRAFT FOR CFS2 FROM THIS POPULAR ADD-ON
AEROPLANE HEAVEN GRUMMAN F3-F
A BEAUTIFUL BIPLANE FOR CFS2 OR FS2002
BATTLEFIELD 1942
GO TO GROUND WITH SINGLE AND MULTIPLAYER DEMOS OF THE AMAZING TOTAL WAR GAME
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PROJECT MAGENTA
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PLUS FILMS, PATCHES, FREEWARE AND LOTS MORE!

GETTING STARTED

To get the CD running, close all programs and applications and place the PC Pilot CD in your CD-ROM drive. If Autorun is enabled, the program will start and you will see the opening screen and menu buttons. If you don't have Autorun activated, or if the CD doesn't start automatically, press the Start button on your Windows taskbar, move up to Run and left click on it. Type in the Open window: D:/issue_20 (where 'D' is the drive letter of your CD-ROM drive), then press OK and the menu should appear. If all else fails, go to My Computer, right click on the CD icon, and select Explore. You should then be able to open up the folders as required. If the menu buttons won't run, then this may be because they are set up to recognise a D drive. If your CD drive is E, F or G then use the Explore method as outlined above.

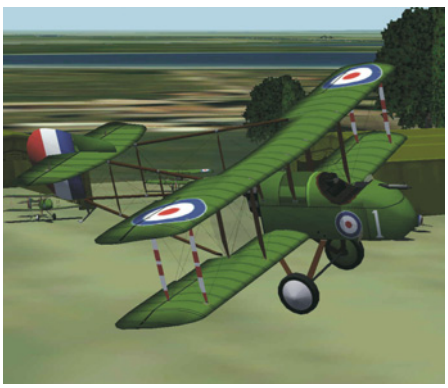
BATTLEFIELD 1942 DEMOS

If our review of EA's monumental war game (that includes flyable planes) has whetted your appetite, here's your chance to try it out. We've included the single-player demo and the multiplayer demo on the CD). To run the single-player demo, just open the Zip file called bf1942_sp_demo, extract the .exe file to a temporary folder and then double click on it. This lets you loose on the ground at Tobruk – it's a long way from air combat but it'll give you an idea of what the full (plane-equipped) version is all about.

COMBAT ACES

Flushed with the Christmas spirit and a dash of ginger wine, those nice chaps at Just Flight have kindly donated a portion of their hugely popular Combat Aces program for the exclusive use of PC Pilot readers. Combat Aces takes Combat Flight Simulator 2* back to the days of the pioneer air fighters in World War I, and we've got eight excellent aircraft for you to try out. Fly the Airco D.H.2, Bristol F.2B, HP 0/400 and Spad S VII on the Allied side, or you can try the Fokker EIII, Albatros DVa, Fokker Dr.1 (Red Baron) and Zeppelin Staaken bomber for the opposition. All you need to do is click on the button or navigate the CD to the combace.exe file and the aircraft will all install into CFS2. If you like the look of them and fancy getting the whole package of 20 aircraft, seventy missions and scenery for little more than the King's shilling, then enjoy the great offer we've got on page 52.

** No, Combat Aces doesn't work with CFS, FS2002, CFS3, Lotus Notes, X-Plane, PlayStation 2 or anything other than Combat Flight Simulator 2.*



AEROPLANE HEAVEN F3-F

We recently heard about a new Australia-based publisher of Flight Simulator and Combat Flight Simulator expansions by the name of Aeroplane Heaven, and if their early releases are anything to go by, their arrival is going to be heavenly for flight simmers.

As an exclusive treat for PC Pilot readers, they've kindly given us their model of the Grumman F3-F, an American carrier-based biplane that you can fly in FS2002 or CFS2. The two .exe files in the Aeroplane Heaven folder will provide you with everything you need to experience a taste of this famous little fighter. The EXTRAS Zip includes a special Owner's Manual detailing installation instructions, features, and flying hints for both simulators.

It also contains a set of extra gauges (for FS2002 and CFS2), a set of special effects, and a one-off carrier training mission so you can try out the F-3F under pre-war US Navy conditions in CFS2.

For this demo release the sound files are 'aliased' to existing stock sounds, but in the full release a complete sound pack will be included, together with more detailed models, more animation and a full multi-mission CFS2 campaign pack. If you enjoy this limited demo, please visit www.aeroplaneheaven.com, where you can find more information on this and their other quality aircraft.

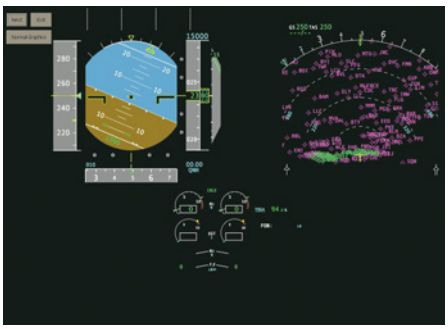
SIMFLYERS AIRPORTS

Here are three amazing airports for FS2002 from the team that brought you World Airports. Washington, Rome and Manchester are available to try before you buy, courtesy of SimFlyers. These demo versions will run with copyright notes displaying in the scenery and some ground textures (e.g. on the runways) not showing. Run the scenery by unzipping the files to a temporary folder, and then for further instructions open the Readme files. To activate the full version you can get the registration keys from www.simflyers.net.

PROJECT MAGENTA DEMOS

You won't have to use a network (yet) and you don't even need Flight Simulator to get a glimpse of the new features in PM's glass cockpits. The new demos include all their latest features as well as a new 'flyabout' mode, which is activated if Flight Simulator and WideFS aren't running. If FS is detected, the mode is disabled and FS data is used.

The glass cockpits will simply fly by themselves so you get an idea of how the software might look on your system. Among the new features in Project Magenta's glass cockpits are Terrain Display (phase I of the EGPWS implementation) as well as Weather Radar display (which is static in the demo).



FLIGHTS ON FILM

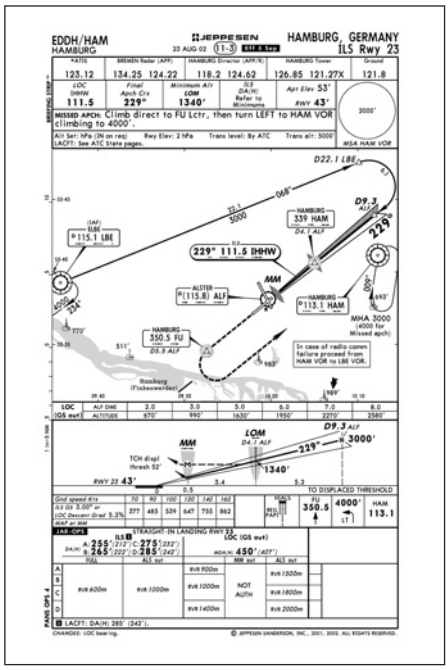
Latest in-game movies from Wilco for Airport 2002, and some film to accompany our News item about Battle of the Airlines. You may need to install the DivX 5.0.2 codec, which you'll find in the BOTA folder. We've also got some film of the new VFR scenery that's reviewed elsewhere in this issue. Take a look and see if you can spot your house. If you live outside the UK, take a look and get jealous!

VIRTUAL AIRLINES

We've put our latest list of VAs on the CD, and as a bonus this month we've also included the front page of www.vamagazine.net. This is a new online magazine for VAs that you might find of interest.

CHARTS

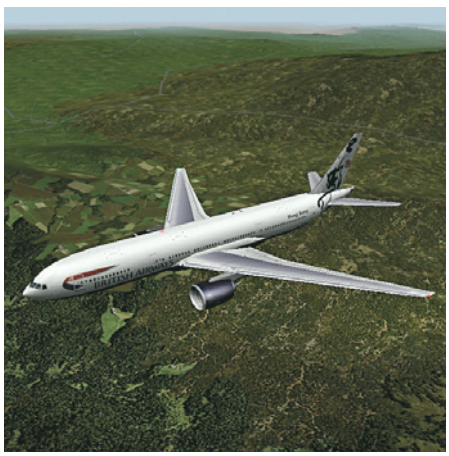
The official versions of the two Jeppesen charts used in our tutorial are included on the CD in PDF format. If you have any trouble accessing the charts go to My Computer, right click on the CD icon and select Explore. To view them you'll need Acrobat Reader, which is also included on the CD.



UTILITIES

X-Plane

Version 6.40 of Austin Meyer's amazing sim has now arrived. As with all X-Plane upgrades, this will run as a five-minute demo that lets you have a quick spin.



The Dam Busters

The Dam Busters has proved to be one of the most interesting add-ons for a flight simulator, and now this update provides a new Lancaster for some of the Tallboy missions. Information from Squadron Leader Bob Knights, who took part in many Tallboy raids, provided the developers with much of the historical detail for this upgrade, and the CFS2 version has some modified missions for the new aircraft.

To install the patch, copy the appropriate version (CFS2, FS2000 or FS2002) to your hard disk and run the .exe file. It will automatically locate your copy of Dam Busters and install the necessary files.

IL-2 Sturmovik

The newly-released 1.2ov patch is completely identical to and compatible with the already released version 1.2, except that version 1.2ov has an open folder structure for radio chatter voice files and corresponding HUD messages. You must have already upgraded to Version 1.1 (PC Pilot Issue 18 CD) prior to installing this upgrade.

Peter Dowson

The latest versions of Peter's excellent FS utilities.

Combat Flight Simulator 3 SDK

Aircraft, Vehicle, and Building SDK (Software Development Kit) 1.0 is now available! If you have experience with gmax you'll be able to tinker with the innards of CFS3 and start producing your own aircraft and vehicles. In order to install it properly, you should first make sure you have gmax. To get it, please visit http://www.discreet.com/products/gmax.

WinZip & Acrobat Reader

You'll need these important utilities to open up Zip files or read PDF files. Please note that any shareware should be paid for and registered if you want to use it on a regular basis.

IMPORTANT - TECHNICAL SUPPORT

The CD and software on it is free and, as such, neither PC Pilot nor any of the publishers or developers of the software supplied on it can provide technical support. The software is supplied very much 'as is' and without support. Remember, many of the programs are freeware and are generously provided by enthusiasts for the enjoyment of others. By all means send feedback to mail@pcpilot.net, but remember that freeware doesn't always work as seamlessly as commercial software. Enjoy the CD and the software on it!

Forgotten Battles

IL-2 Sturmovik expands – it's official!

As Microsoft has discovered, add-ons and expansions, even from third parties, are a sure-fire way to build a huge community around your product and prolong its life well beyond the theoretical sell-by date. When Ubi Soft's IL-2 Sturmovik was released last Christmas and the gasps of delight had begun to subside, people began to ask, "When will there be some add-ons?" There was in fact some freeware already available when IL-2 was officially released, and there's no shortage of fans creating missions, skins and even campaigns for the cement plane sim.

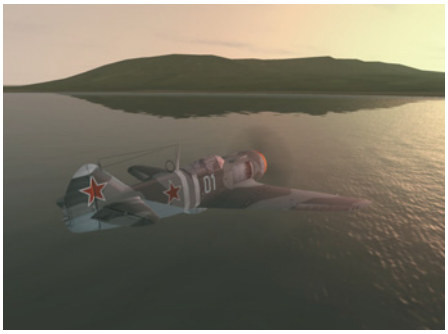
Just Flight, already acknowledged as aces in the Microsoft add-on skies, turned their attention to IL-2 and released two unofficial add-ons containing extra missions, a campaign and additional skins. However, IL-2's developer, Oleg Maddox, didn't put his feet up and leave the enhancement of his ground-breaking sim to chance. His follow-up expansion for IL-2, called Forgotten Battles, is set for release early in 2003, and promises to be much more than a collection of extras. Early signs are that the detail will surpass what we've already seen in IL-2, and the feature list definitely reads more like the spec for a new release than for just another add-on. Ubi Soft has decided to go down the road of offering Forgotten Battles bundled up with a fully updated version of IL-2. This effectively means that buyers get a standalone product and there won't be any confusing installation issues as you (or the software) try to work out which patches are installed.

No, not VFR Photographic – this is Leningrad!

At the heart of Forgotten Battles will be a dynamic campaign system that will work in single-player mode both with existing IL-2 maps and also those included in Forgotten Battles, but there will also be three new map areas. The first covers the Gulf of Finland area, which encompasses the swathe of territory from Helsinki to Leningrad, including Tallin, Kronshtadt and Lake Ladoga. There's a Hungarian map area representing the Balaton Lake area, and finally a Lvov map area covering the Ukraine and Poland. We're expecting 20 new single-player missions and 10 co-operative multiplayer missions using the Finnish and Hungarian map areas and orders of battle.

As well as the campaign, Forgotten Battles will feature new AI (Artificial Intelligence) ground objects and vehicles, and 3D modelling for new types of buildings in the additional map areas. Glory hunters won't be disappointed, because in addition to the current Russian and German rankings and awards, a new system will be added for Finns and Hungarians.

If Combat Flight Simulator 3 is crowned King of the Ground Attack Sims, it may be a short reign! Forgotten Battles will feature searchlights and barrage balloons that will be



Water effects are truly beautiful

Up close and personal in the P-40

Zdravstvuyte Sailor!

integrated into the gameplay. Watch out below! The war for sim supremacy between Seattle and Moscow may also be fought at sea. IL-2 was renowned for its water effects, and Forgotten Battles will be bringing with it four new large ships with individual damage models – the Russian battleship Marat, cruisers Aurora and Kirov, and the German AA cruiser Niobe.

The main area of interest for most of us, however, will be what happens above the waves and, when it comes to new aircraft, Forgotten Battles looks like a real flying feast. Oleg Maddox has said that he's improved flight dynamics by adding more complex and precise calculations that should keep flight model purists happy. There will also be new engine management settings that correspond to the modelled aircraft type when in full realism mode. These will include the use of radiators, superchargers and fuel mixture controls, when required, at different altitudes.

To really emphasise the 'new version, not an add-on' characteristics of Forgotten Battles, there are 27 new flyable aircraft spread across 13 different types of machine. As well as Me 109s, Fw 190s and La-5s, you can also get behind the controls of a Brewster Buffalo or even a mighty TB-3 bomber. There will be four Hurricane variants, and the ones we've seen certainly do justice to IL-2's reputation for accuracy. The new planes do include eight different types of AI aircraft and, with the model variations, the non-flyable fleet is increased to twelve. Keep your eyes peeled for Blenheim Is and IVs, Me 210s and Moranes, among others.

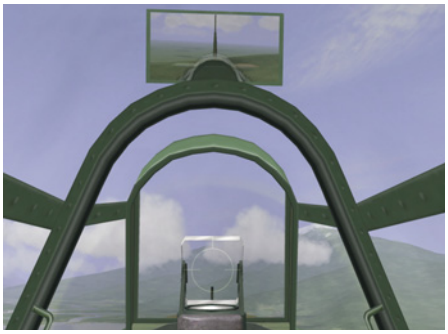
If Forgotten Battles includes half of what's promised, and the finished product looks half as good as what we've already seen, then it will still be a force to be reckoned with. It's got everything IL-2's devoted fans have been asking for, and more besides. ■

Derek Smalls

The TB-3 bomber looks like a flying shed

The Stuka crew are keeping an eye out for those sausages

Oleg's proud of his clouds!



Even the mirror looks fantastic

Cold enough to freeze the bullets off a TB-3 gunner

Preview Information

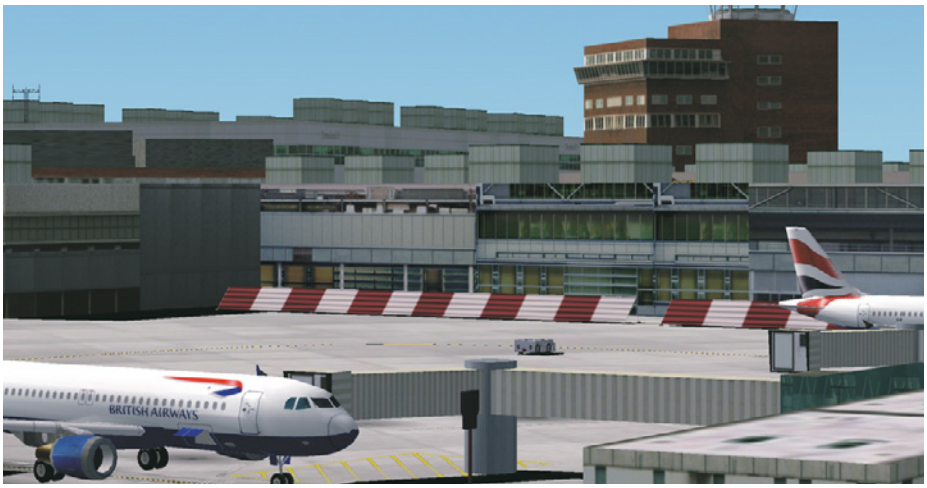
Publisher: Ubi Soft
Price: TBA
Website: www.il2sturmovik.com
Developer: 1C:Maddox games
Release Date: 20 February 2002

Airport 2002 Volume 1

Airports as NATure intended

After three successful editions of Airport 2000 scenery for Flight Simulator 2000, Wilco Publishing is launching a new incarnation of the franchise with Airport 2002 Volume 1, which will be their first add-on for FS2002. This title features seven new 3D airport models powered by Wilco's exclusive new technology, FS NAT (New Animation Technology) that they tell us is capable of delivering more complex animations, more static and dynamic objects, more sounds, and higher resolution – without making a severe impact on PC performance. FS NAT will even allow you to create your own animations.

This sounds like something of a holy grail for scenery designers, and although we pressed Wilco and their UK publisher, Just Flight, for more details, they were staying pretty tight-lipped. We've heard plenty of claims of 'secret' technology in the past, and most of them turned out to be publicity hype. FS NAT, however, doesn't fall into that category and the preview version we've seen, although unfinished as we went to press, is awesome. Thanks to the mysteries of FS NAT, all manner of activity outside the aircraft is displayed in dynamic detail. You can hear the engines shut down after landing, see the jetway moving towards the aircraft, and observe realistic ground vehicle operations, ranging from docking to unloading – all with no obvious effect on the frame rate!



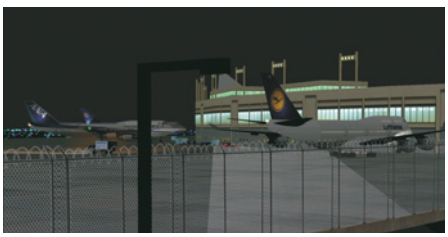
Heathrow – detailed down to the dirt

The package also includes a well modelled 737-400 that uses FS2002's enhanced virtual cockpit to let you fly directly from the 3D view. There's no need to switch to a 2D flat panel to turn on the autopilot, grab the throttle, or consult the FMC. We should be able to pan and zoom around the cockpit using the mouse or keyboard shortcuts to get the views we want.

Passenger doors, hydraulic undercarriages, flaps, rudders, ailerons, spoilers, reversers, cargo hatches and wheels are all fully animated. The instrument panel is impressive, as is the FMC.

However good the aircraft, it's the airport detail that will sell this package, and ultimately you have to ask if Wilco's prospective customers want a flight simulator or a cross between The Sims and Airport Tycoon. Watching the paint dry on the docking gates isn't everyone's cup of tea, but if that's your bag then Wilco are the undisputed experts at bringing satisfaction!

Derek Smalls


Every cowboy's dream – a night in Dallas

Chicago, Chicago, that toddlin' airport!

Bavarian laptops at Munich

Get an angle on this cockpit

Aisle be seeing you!

By popular demand!

Wilco has chosen seven of the world's most popular airports to model and we won't argue with their choice. Most people's favourite is bound to figure in here somewhere.

London Heathrow
Paris Charles de Gaulle
Munich International
Atlanta Hartsfield
Chicago O'Hare
Los Angeles International
Dallas Fort Worth International

Preview Information

Publisher: Just Flight
Price: £24.99
Website: www.justflight.com
Developer: Wilco
Expected Release Date: December 2002

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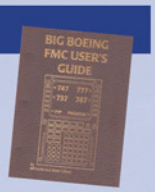

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Combat Flight Simulator 3 Battle for Europe

The good, the bad and the downright gorgeous

It's that time of year again. Microsoft rolls out another product and the whole combat community waits with bated breath to see what wonders the crew have come up with this time. Combat Flight Simulator 3 Battle for Europe is this year's contender. Set in 1943, it concentrates on the tactical air war and has a feature list to make you drool. But...

All is not rosy in the land of CFS3. As revolutionary as this sim claims to be, program stability and performance under fire fall short of expectations even on a high-spec PC. This can be disheartening for the user who installs CFS3 expecting it to run perfectly smoothly out of the box, and to provide an immediate and pleasing flying experience. CFS3 is certainly a fussy beast when it comes to graphics cards, and more than a few of us at PC Pilot have had frustrating issues with this third instalment in the Combat Flight Simulator series.

More often than not this kind of problem is simply a matter of graphics card drivers not being fully up-to-date, but be warned that CFS3 pushes hardware limits. In response to this, Microsoft has already posted a Graphics Troubleshooter section on the CFS Insider website (www.cfsinsider.com), which lists solutions to known issues. We'll detail some fixes later on that should go a long way to turning CFS3 from a slide show into a blockbuster movie.

Set towards the latter half of World War II, CFS3 is principally focused on the tactical air-to-ground war over Europe, with a healthy dose of dogfighting included. Note that there are no strategic bombers, such as the B-17 or Lancaster, and that this is a deliberate move (the theme for CFS4, perhaps?). This new type of action has led the developers, under the leadership of Tucker Hatfield of Red Baron II fame, to create a brand-new graphics engine to render the terrain in unprecedented detail at tree-top level. The result would make Constable proud, and the patchwork quilt of southern England spreads out before you as you lift off to take the fight to the Continent.

The land is covered in lush high-resolution textures, and littered with 3D buildings and trees, courtesy of the Combat Autogen scenery. This is similar to the wonderful Autogen scenery in Flight Simulator 2002, and turns a flat landscape into a true 3D model of the world; coupled with the mesh terrain, this is as good as any multi-million pound military simulator around. Small touches such as moving vehicles and power lines create a world that seems more alive than most. The effects on system performance of all this detailed rendering can be close to catastrophic, though, with horrible stuttering reminiscent of the bad old days of Flight Simulator 2000.

There are bombers somewhere in those clouds

Fiddling with the display settings within CFS3 can significantly improve the frame rate, although this isn't really the problem. Frame rates of around 25-35 frames per second were common on our 1.8GHz, 256Mb RAM, ATI Radeon 9000 PRO test system, running at 1024x768 resolution and 32-bit colour with all sliders set to four. The real problems manifest themselves when turning sharply over land, or when explosions and smoke start to fill the screen. At this point the disk starts thrashing and it's time for a cup of tea while the sim catches up. Luckily, most of this stuttering can be quashed using the CFSCONFIG utility that ships with the program. The effort is worth it, as once you manage to get CFS3 running sweetly on your system, then its true depth becomes apparent.

Fancy some role-play?

The biggest fundamental differences between Combat Flight Simulator 3 and its predecessors are the role-play element and the dynamic campaign at its heart. The new user interface depicts your pilot persona mooching around his aircraft, ready to take on the world at a moment's notice. This is more than just a pretty picture, as it really does show your selected aircraft. If enemies are nearby, then you'll have to dive for cover as the bullets start flying.

There's always the next mission...

You ain't going nowhere

The Mustang is favourite with the Loaded Dice Squadron

On the left-hand side are four vertical tab buttons for Quick Combat, Single Missions, Campaign and Multiplayer. Click on one of these and the relevant mini-screen slides out to reveal your options. You must first select a pilot who you can develop with each flight. Each pilot has three key attributes that can be improved over his lifetime: vision, G-tolerance and health. The first of these determines the distance at which you can distinguish friend from foe, the second your ability to withstand G-forces in combat, and the latter how much damage you can take before buying the farm. During flights your pilot will earn skill points, and these can be distributed between these three characteristics as you see fit.

Through the course of a campaign your pilot may need rest, as he's guaranteed to experience some fatigue, which will impair his flying and fighting ability. Over time your pilot will rise through the ranks,

That Junkers is junk

picking up a few medals on the way and becoming stronger with it.

Quick Combat mode allows you to choose between a host of air-to-air and ground attack missions which throw you straight into the action. Here you can choose one of the 18 flyable aircraft, set up air and ground targets and specify the weather. The clouds are perhaps the graphical highlight in CFS3, being so wispy and voluminous that when you fly through them you can almost feel the moisture on your skin. Unlike other sims, clouds play a crucial role in air combat here, as once an enemy aircraft heads into a cloud you're no longer able to track it. This not only makes for more challenging dogfights, but also gives you an escape route when the tide starts turning against you.

Snow and thunderstorms are modelled, and wind effects too can play a significant role; be careful when lining up for take-off, as it might be windier than you think. Combat Flight Simulator 3 features an interesting mix of fighters, ground attack aircraft and medium bombers. Not only are the usual aircraft from 1943 ready to fly, but some more unusual experimental specimens are also on hand to spice things up. By adding aircraft such as the de Havilland Vampire and Curtiss P-55 Ascender it's possible to recreate what-if scenarios. Would the Allied jets have made a difference against German Flying Wing Go 229 bombers? With this many options there's plenty of fun to be had just trying out the different combinations of aircraft and missions, and practising your ground attack techniques.

Jumping into your plane reveals a 3D virtual cockpit with a zoomed-in view of the gunsight. There's no 2D panel option anymore, but you do have the option of a full-screen HUD (Head-Up Display) mode with five selectable translucent instruments, just as in Fighter Ace III. While purists may not like this view, it does offer superb situational awareness, particularly in dogfights, and can make all the difference between victory and ignominious defeat. The virtual cockpits on the whole look refined, with working instruments and some excellent texture mapping. That is, in most of the aircraft at least; there's considerable variation in quality, with some of the more established aircraft looking a little rough around the edges.

There are some pleasing touches to the virtual cockpit view; you can easily switch between snap view and smooth panning by hitting [Scroll Lock] and it's also possible to adjust the seat position with various combinations of the [Shift], [Ctrl], [Enter] and [Backspace] keys. The padlock view works well, although it can be disorientating for both rookies and veterans alike if you're not careful. An annoying feature is that the 'modern' gunsights available on the P-51 Mustang, and other aircraft that automatically compute lead effects, are not modelled at all in CFS3.

G-effects on pilots are modelled with a reducing cone of vision, leading to blackout under positive G-forces, and 'redout' for negative Gs. What's unusual is that these occur in all views, so it isn't possible to cheat and switch to an external view when you start losing your vision. Boosting your pilot's resistance to G-forces can make a significant difference in any turning melée. When pulling those tight turns some eerie creaking noises emanate from the airframe, and are another hint to back off on the stick. Another refinement that will keep hardcore simmers happy is the ability to turn off all aids, such as the targeting cone, target map display and aircraft labels, so that you have nothing to rely on but your own eyes.

Externally, all the aircraft look absolutely stunning, with full 32-bit textures and some of the shiniest reflective metal effects you'll ever see. Take up a P-51 Mustang or P-80 jet and just watch the sun glisten off the silver surface. On night ops, you'll see the muzzle flash light up the fuselage and the cockpit. When selecting your aircraft, you can customise it with nose art, raid stripes and two-letter identifier.

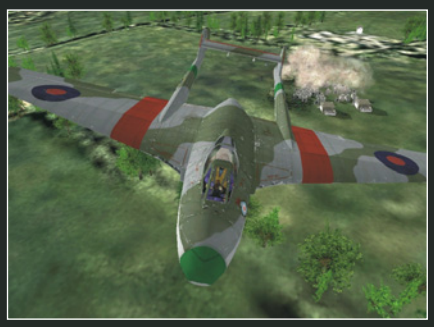
Pick 'n' mix

CFS3 features 18 flyable aircraft and 16 variants thereof, so there's plenty of variety to keep you busy. This is just as well, as none of your old CFS2 add-ons will work, certainly until the aircraft and vehicle SDK (Software Development Kit) is released. The major overhaul of the game engine means that all aircraft must be constructed using gmax, and the aircraft files themselves are organised differently, with XDP files containing much of the aircraft information.

We tried loading a gmax CFS2 aircraft into CFS3, but to no avail; it was fairly obvious that it wouldn't work just by looking at the aircraft directory structure and file names. The CFS community is already raring to go, and several developers are already building gmax models. The terrain SDK is due out in Spring 2003 and, as with all of Microsoft's Flight Simulator products, we anticipate this being the best yet for expandability. The party is only just starting.

Secret Weapons of the Luftwaffe!

The Jet Age cometh



de Havilland's Vampire makes an early appearance

The XP-55 Ascender. Anything they can do, we can do better

Teamwork is needed in the B-26 Marauder

Plenty of spit and polish on the P-38 Lightning

Try the full-screen HUD mode for improved visibility

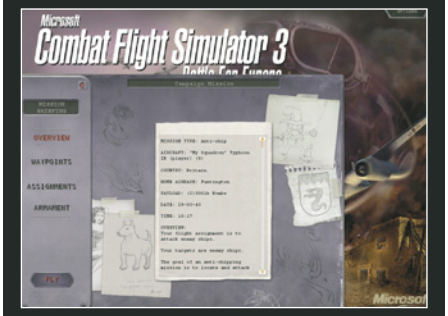
The P-80 Shooting Star

Where Microsoft has really gone to town is on the damage modelling and effects. While this is not always apparent in the visuals, when your aircraft is hit various components such as control rods and cables can be individually affected, as well as more major components such as landing gear and engines. Sustain too much damage and you'll even start to hear the whoosh of air over the broken canopy. Strafing an enemy bomber produces tell-tale debris swirling away behind it amid plumes of smoke. Deal the final blow and the plane will break up and spiral to earth while the crew bail out if possible. Ground attacks are even more spectacular, with bullets kicking up dirt and water, and Hollywood-style explosions that would not look out of place in a Bond movie – it's utter magic.

Under the cowling

While CFS3 has made great strides in the looks department, the flight modelling of each aircraft is also an improvement on previous versions, with the most realistic setting fully capable of flinging the unwary into flat spins and nasty stalls. While it doesn't feel quite as fluid as IL-2 Sturmovik's excellent dynamics, each aircraft in CFS3 certainly has its own distinct character and has to be flown accordingly. In fact, a display and test pilot – with many hours in Spitfires, Hurricanes, P-51s and Me 109s amongst others – told us in recent discussions that he was particularly impressed by both the flight modelling and AI pilots in CFS2. He explained that using correct tactics for each aircraft type worked against a not-so-stupid enemy who played

Campaign wars



Choose your mission and suit up

Anti-shipping raids play a crucial role in the war

The convoy has been stopped, but make sure you've got enough fuel to get home

Another successful mission and the front line advances

No rest for the wicked. Here we go again…

Bonfire night comes early

the energy balance game to a tee, and not doing so would result in certain defeat – praise indeed. The dynamics in CFS3 certainly feel more refined than in its predecessor and better towards the edges of the flight envelope, although still not quite perfect. While the hardcore may baulk at this and extol the virtues of IL-2, CFS3 does offer credible modelling that may appeal more to the novice and intermediate simmer thanks to its slightly more forgiving tendencies.

Dogfighting is similar to previous versions, with more interesting escort and intercept missions, but the principal new feature of CFS3 is the ground attack capability. Fighter-bombers such as the Typhoon and P-38 Lightning frequently come into play for bomb, rocket and strafing attacks on a variety of targets; these include airfields, rail depots, factories, bunker positions, vehicle convoys, trains, ammunition dumps and bridges.

Flying from your home airfield, you can skip the long flight to target by using the Warp feature. Hitting the [X] key hands your plane to an autopilot on steroids. This is not as instant as in CFS2, though, as the game

Bombs away!

engine must update the world around you in real time. When you come across some enemies you'll be unceremoniously dumped out of Warp, ready to face the music. Flak bursts abound and can cause considerable damage if you're unlucky; stay focused as it takes a fair degree of concentration to put your pipper on the money while avoiding becoming target-fixated and ploughing a new furrow in the ground.

Launching rockets and strafing are fairly straightforward procedures, but dive-bombing is somewhat trickier, so it's well worth reading the included PDF manual on ground attack techniques before embarking in earnest on any real missions. Using the medium bombers such as the B-26

Coming in low!

Marauder is more involved, as it's a multi-crew aircraft and each crew position is available to you throughout the flight. You can choose to pilot the plane, or hit [F8] to jump between the different gunnery positions while the computer takes over flying duties. This can be great fun when you're bounced by enemy fighters, although it is supremely difficult – not that this is unrealistic.

A serious deficiency, however, is that bullet tracers do not line up for gunners firing sideways (perpendicular to the aircraft motion). This is apparently due to the order in which the game engine computes and then displays the bullets, and is a known issue. It may well be, but it does make gunnery considerably more difficult. With practice, however, you can learn to compensate for this effect. Be warned also that swivelling around in the gunner's view while the aircraft is jinking to avoid enemy fighters can induce severe queasiness.

Once you're near the ground target, you can switch to the bomb-aimer's view to try and line up the cross-hairs on the target and release the bombs. There is no flight information given here by default, although you do actually fly the aircraft from this position and can hit the [Z] key to display basic flying information or use the HUD. This is necessary in order to line up on target, but can be extremely confusing during the first few attempts. Needless to say, practice makes perfect, and with some of the bombs being thousand-pounders, a direct hit is not always necessary.

Call to arms

As a historical series, Combat Flight Simulator's mission structure has always been quite rigid, featuring scripted missions that are simply strung together to form a

You can look but you can't touch

The Me 262 has all mod cons

The Thunderbolt office, function over form

A Vampire out in daylight

P-55 – nice dash

linear campaign. While this has its advantages, the urge to replay them can suffer, and a sense of immersion can be lacking. With this in mind, CFS3 has been revamped with an all-singing, all-dancing dynamic campaign to keep you coming back mission after mission.

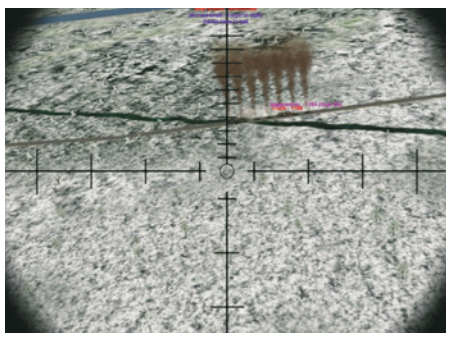
This is the jewel in CFS3's crown. First you must swear your allegiance, choose a pilot and squadron, and then head over to the campaign map where all the action starts. You can choose different careers for your pilot (fighter, bomber etc.) so that missions and aircraft are available accordingly. The map is split into sectors, with the front line initially dividing the English Channel and North Sea. From here you can click on each sector and display the available missions there via the drop-down menu below the map.

These missions vary from reconnaissance and intercept to anti-shipping, ground attack, and more. While the front line will continue to move without your intervention, any successful missions will significantly affect the sector in which you fly them, so choose carefully to make sure that the front line progresses how you want it to. This approach is far simpler than the all-out Air Marshall approach of Rowan's Battle of Britain, but still allows you to influence the war without having to worry about all of the details. This works well in that missions are extremely varied, and the campaign can be replayed many times with different results.

When you select your mission you are taken to a rather bland briefing screen with no details of the actual targets. A waypoint map shows where you're headed, and you can then select your aircraft and armament. Missions tend to be co-ordinated, so any ground-attack flight will be escorted by fighters, and you'll be guaranteed a hot reception on any intercept mission. With judicious use of the Warp function the action is fairly continuous, and you can choose to land or go straight to a mission debriefing once you return to base.

Each successful mission will earn you Prestige points for yourself and your squadron; these are used to give you access

A gunsight would be helpful!



Steady, steady…

Stop the s-s-s-stutter

CFS3 needs a beefy machine. This was not unexpected, but when we first loaded it up on our 2GHz PC we were surprised to see it stuttering along when the action started coming thick and fast. And we were lucky – other users seem to have had even less luck, with many experiencing installation problems. After a few days of adjusting settings, updating drivers, and defragmenting hard drives, we came to the conclusion, as did many others, that there was something within the game engine itself that was at the root of the problem. Luckily Microsoft has shipped a configuration utility, CFSCONFIG.EXE, with the program; this can be used to tune performance. While there's no documentation, folks on the forums at www.netwings.org and www.simhq.com have discovered plenty of tricks that should help users get more out of their machines. Here are some of the main tips that should improve performance.

First things first. Make sure you're familiar with the Readme file that comes with CFS3. Also, go to www.cfsinsider.com for the latest information, and take a look at the Graphics Troubleshooter section. Make sure you have the latest graphics and sound card drivers. Also, defragment all your hard drives, particularly the one containing CFS3, and also your Windows drive.

Some users suggest reducing the level of sound card hardware acceleration to improve overall performance. This is easily done by running the DirectX utility DXDIAG; click on the Start menu, go to Run and type in DXDIAG, and click OK. After a few seconds the DXDIAG program will come to life. Click on the Sound tab and reduce the Hardware Sound Acceleration Level by one notch, so that it reads Standard acceleration, then Exit.

Next, play around with the Display Options within CFS3 itself. The settings that seem to affect performance the most are Effects, Clouds, Scenery, and Terrain. Turning off shadows and reflections will also make life easier for your graphics card. Some people report that CFS3 'likes' higher resolutions, but try different settings (16-bit colour instead of 32-bit, for example). The key here is to experiment.

If that doesn't improve things dramatically, then it's time to roll up your sleeves and load CFSCONFIG.EXE, located in the CFS3 folder on the Start menu. This should identify your graphics card. From here you can change the resolution settings and anti-aliasing by clicking File, then Change Display Options. Now for the detailed settings: click File, then Custom Settings; you will get a warning but just click OK. The first screen shows the in-game display settings, so set these up first. Try reducing Effects and Clouds.

Now click on Windows, then Overrides; this will pull up a large list of settings with tick boxes.

- Untick Dual Pass Render
- Tick High Resolution Z-buffer
- You may also tick Disable Intro Movie, Disable Movie UI, and Disable UI Animations; this will improve load times, but not allow you to preview your aircraft

Now click Windows, then Texture Info.

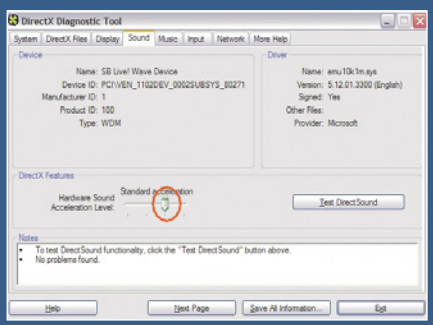
- Change Composite Terrain Texture Pool to D3DPOOL_SYSTEMMEM
- You can also try changing Composite Aircraft Texture Pool to D3DPOOL_SYSTEMMEM
- If you have 512Mb or more of RAM then you may also find an improvement by changing Vertex Buffer Pool and Index Buffer Pool to D3DPOOL_SYSTEMMEM

Now click OK to return to the main CFSCONFIG screen. Click File, then Exit.

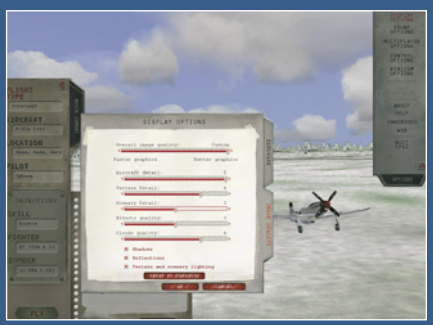
It's important that you do not then go back into CFSCONFIG to change one thing, as it may forget its settings. Now fire up CFS3 and see if it makes a difference – some people have reported being able to crank all the detail levels up to 4 and 5 on 1GHz systems. Our experiences on a 2GHz system, with a 64Mb Radeon 9000 PRO graphics card and 256Mb of PC2100 DDR RAM, are that settings of 3 and 4 at 1024x768 in 32-bit colour give reasonably stutter-free results, although when aircraft and buildings explode there can still be a significant freeze-up. Try the different settings in CFSCONFIG and see if you can find a combination that suits your system.

In order to make your changes permanent, you can lock the file in which CFSCONFIG stores its settings. This file is called ConfigOverrides.xml, and is in the CFS3 directory on Windows 98/ME systems, or in C:\Documents and Settings\<username>\Application Data\Microsoft\Combat Flight Simulator 3.0 on Windows 2000 and XP systems. Locate this file, right-click on it, and select Properties from the menu. Tick the Read-only box at the bottom-left of the box and click OK.

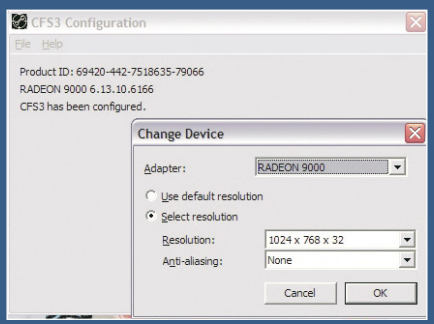
So there you have it. Any more tips are most welcome, as Combat Flight Simulator 3 is a wonderful flying experience when it's running smoothly. It would be a shame if people were to miss out on the superb experience because of a few software settings.



Reduce hardware sound acceleration using DXDIAG

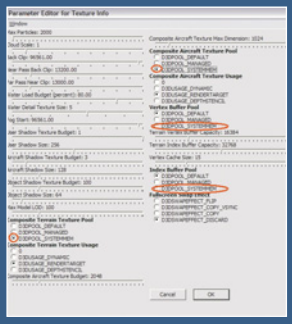


Experiment with the in-game Display Options first. Turn down Effects and Clouds first

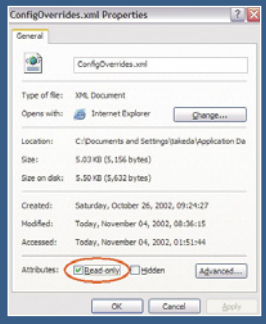


Load up CFSCONFIG to make detailed changes to your setup

Get rid of Dual Pass Render in the Overrides section of CFSCONFIG



Set D3DPOOL_SYSTEMMEM to improve graphics loading performance

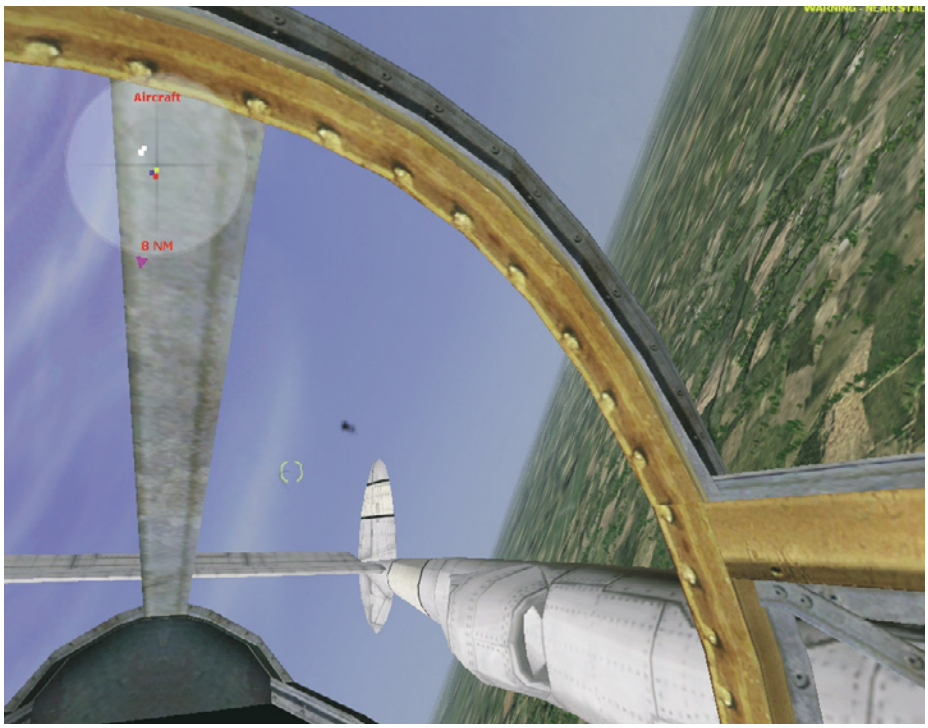


Make your changes permanent by locking ConfigOverrides.xml

Add your own squadron markings and identifiers

to better aircraft, and you can eventually move your HQ closer to the front line and all the action. Skill points are also gained so that you can develop your pilot, and moments of valour will earn medals and commendations that are all good for the career. Don't be surprised, though, if you don't earn any points when you set yourself up as Invincible; you do have to put in some hard work to earn your Prestige and Skill points. The dynamic campaign is nicely balanced and also engrossing, with the pilot career aspect adding a significant depth and character to the proceedings that is lacking in other sims.

The multiplayer side of CFS3 is provided within the game interface, using the CFSMatch service. This makes it extremely simple to set up both head-to-head, team dogfights, and co-operative missions, where multiple players crew a single aircraft. Work has clearly gone into making multiplayer more 'secure', in that the host has more



The padlock view can be quite scary

control over game settings, and it's harder to 'cheat' with your own aircraft modifications.

Mission debrief

So, two years on from the last version, does Combat Flight Simulator 3 Battle for Europe take the WWII flight simulator crown? Well, yes and no. In terms of new features such as the dynamic campaign and pilot career it is unrivalled. Whilst others have tried, Microsoft has struck the balance between playability and complexity. CFS3 is engrossing, the flight dynamics and damage modelling have been stepped up, and there are some genuinely exciting aircraft to fly – and the expansion prospects ought to be astounding. The game looks and sounds phenomenal, but therein lies the problem.

Based on what's been written, this new arrival should have received a five-star award, as every other Microsoft flight simulation has done in recent years. But it didn't. There's one simple reason for that, and that is performance. CFS3 is a serious resource hog and, worse than that, even on high-end systems it suffers from some very distracting stuttering that severely affects gameplay. There are tweaks worth trying which should optimise the game on a given PC, but even then performance can be far from smooth. If Microsoft manage to fix these problems and issue a patch then we will gladly revise our opinion – and we would absolutely love to do so. We do think that this is a great simulator, but only when it is running smoothly without jumping in fits and starts on our highest-spec PCs. ■

Kenji Takeda

Can't stand around here all day… I've got bridges to bomb

Review Score

Publisher: Microsoft

Price: £34.99

Website: www.microsoft.com/games/combatfs3

Developer: Microsoft

At a glance: A well-rounded WWII simulator that captures very well the essence of the tactical air war. The dynamic campaign and career mode are excellent, but superb visuals are let down by questionable graphics performance.

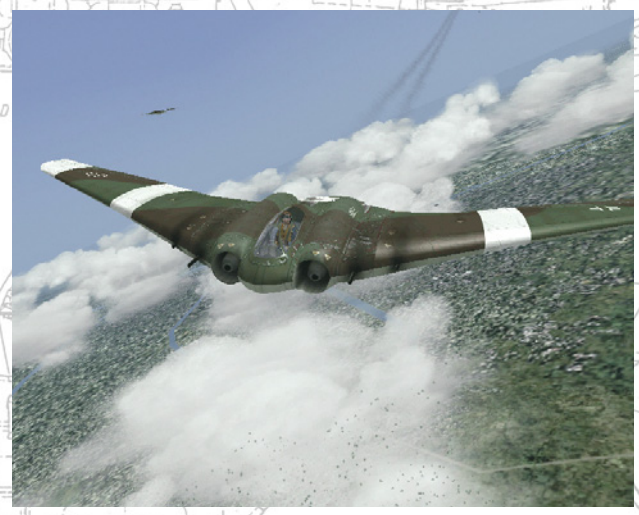
System Requirements: PII 450MHz, 128Mb RAM, 16Mb graphics and sound card

Recommended: P4 1.8GHz, 512Mb RAM, 64Mb 3D graphics card

Alternative History

From flying wings to fearsome fighters!

Even before the ink had dried on the specifications sheet for Combat Flight Simulator 3, the knives were out for whoever had chosen the aircraft. Spitfires, Mustangs and Ju 88s were fine, but Microsoft took a big gamble in departing from historical accuracy and including planes that might have taken part in WWII if things had been a little different. Now that CFS3 is released, their decision may be slightly vindicated.



German genius or Microsoft madness?

CFS3 could be accused of being too 'gamey', but the intelligent campaign means that you don't necessarily get to win, even if you pick what might appear to be the 'winning' side. IF the Allies had delayed D-Day, and IF their bombing campaign was less effective, then it's arguable that the war would have lasted much longer and jet-to-jet combat would have become more commonplace. It didn't happen, however, so is this aspect of CFS3 just fantasy, or is there some solid background behind it?

We know that some of the team behind CFS3 can trace their ancestry back to Lucas Arts' Secret Weapons of The Luftwaffe, a game centred around some aircraft designs that the Germans were working on when the war ended. German technology was hastily snapped up by the advancing Allies, and the MiG-15 and B-2 Stealth Bomber are both direct descendants of the German jet programme. As well as the amazing Go 229 flying wing and the Dornier Do 335, German scientists were actually developing jets that would run on coal; although current thinking suggests they might actually have worked, you won't find a button for 'nutty slack' in CFS3! However, you will find the de Havilland Vampire, the P-80 (later F-80) and the Curtiss XP-55 Ascender. None of these took part in WWII, but it was actually quite a close-run thing.

The Lockheed F-80 Shooting Star was the first operational jet fighter in the United States and entered service in 1945. It had its origin in June 1943, when Lockheed was asked to create a fighter around the British de Havilland turbojet engine. The XP-80 was designed and built in an amazing 143 days and flew for the first time on 8 January 1944. It never saw combat, but it could have done… The de Havilland Vampire first flew in September 1943 and could also have fought in WWII if its development program had taken a different course.

Meanwhile, there were also some strange creatures with props taking to the air. The Dornier Do 335 looks highly unusual, with its fore-and-aft engines, but it had many innovative features, including an ejector seat and a 'quick-release' rear propeller that flew off if the pilot ejected; this has been modelled in CFS3. Technically innovative, heavily armed and capable of performance which no other piston-engined aircraft has ever achieved, the Do 335 had great potential as a combat aircraft, but was delayed by high-ranking indecision and Allied bombing raids.

The Curtiss XP-55 Ascender looks like it has escaped from Crimson Skies, but it really existed. In fact, there's still a fair amount of one left, which has been loaned out by the Smithsonian Institute to the Kalamazoo Air Zoo (www.airzoo.org) for restoration. Developed in 1939, the XP-55 was an unconventional swept-wing canard pusher aircraft that lacked a tail. Only three

The Curtiss Ascender – it really flew!

prototypes were produced, with the first taking flight in July 1943. Testing continued through 1944, but due to inherent stability problems and poor low-speed handling development was abandoned.

Finally, the weirdest looking beast of all is the Gotha Go 229 flying wing. The responsibility for this amazing machine can be laid firmly with the Treaty of Versailles. This was the document that ended WWI and it greatly limited German aircraft development. It didn't, however, say anything about gliders! Two brothers, Walter and Reimar Horten, did many experiments with tailless gliders and their research culminated in the Ho IX – a design for a flying-wing night-fighter. Orders were given for it to be built at the Gotha factory (hence the change of name) but it only got as far as the prototype stage and its remains still languish in the care of the USN Air & Space Museum.

The sorry-looking prototype of the Go 229 (Photographs by Phil Callihan http://airpower.callihan.cc)

So, is the inclusion of these aircraft in CFS3 a bit of vanity publishing and an excuse to re-create SWOTL in an up-to-date combat sim, or is it a genuine and interesting exercise in speculative history? Given that none of these aircraft actually went into combat, the jury's still out, but it's fair to say that they all got airborne in one form or another. Although the 'if' is a big one, given the disorganised state of German officialdom, there's no doubt that the technology acquired by the USA bore fruit – you only have to look at the similarity between the Go 229 and the B-2 Stealth bomber.

Derek Smalls

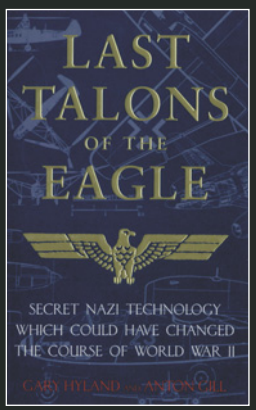
X-Plane-ing the names

The arrival of some of the more bizarre aircraft in CFS3 may have got you wondering about the lettering used on American aircraft. We all know the Mustang is a P-51, but what's an F-51? Is the XP-55 any relation to the Bell X-1? If the B-26 is a Marauder, what's the B-26 Invader? It's all very confusing, but if you go back to the 1920s all becomes clear. The USAAF (US Army Air Force) designated their various aircraft P for Pursuit (fighters), B for Bombers, A for Attack aircraft, and X for Experimental. An XP-55 was an Experimental Pursuit and this gave rise to the term X-Plane, used for anything weird and wonderful that the public aren't supposed to know about (no offence, Austin). All was going well until September 1947, when the USAAF became the USAF (US Air Force) and decided in June 1948 that they would re-designate their aircraft. B would still be for bomber, but fighters were now designated F instead of P and so the Mustang became the F-51 and XP aircraft became XFs. They decided to drop the A for attack and thus the A-26 Invader became the B-26, leading many people to think that Marauders served in Korea. If you think all this is confusing, be thankful Microsoft didn't include any PW (Pursuit Water-Cooled) or XS (Experimental Supersonic) aircraft. Maybe they're saving those for CFS4!

Both B-26s but the Marauder (right) got there first

X-Books

There's a wealth of books on the subject of strange WWII aircraft, but you need to be careful in selecting between serious works and the "Nazi scientists built alien spacecraft" genre. If you want the facts, and nothing but, then you need Luftwaffe Secret Projects. Written by various German authors, there are two volumes, which covers fighters and bombers. Last Talons of the Eagle, by Gary Hyland and Anton Gill, is a more exciting read without lapsing into realms of wild conjecture. Read on, and the next time anyone tells you that the Germans were finished by 1945, show them the jet bomber that was destined for New York, but never built because the factory was flattened by Allied bombing!



VFR Photographic Scenery:

EAST & SOUTH-EAST ENGLAND

This IS as real as it gets!

A few months ago we had the pleasure of previewing a scenery product developed using photographic data supplied by Getmapping PLC, and the first instalment in a series of four is now available. Our preview version of the scenery was very much in beta form and, although impressive, had quite a long way to go before it could be used for any serious flying. You'll be pleased to know that the developers and publishers have ironed out all the problems to produce a genuinely ground-breaking product.

VFR Photographic Scenery accurately maps aerial photographic imagery over a 3D terrain mesh within the Flight Simulator world, and looks likely to annihilate the opposition in the add-on scenery market.

The Millennium Dome under the wing, with London's City airport ahead

Plenty of scenery products use some form of texture mapping, with a few going further by incorporating geographic terrain data to give the simulated scenery more authentic depth perception, but this is the first time that anyone has used actual photographic data, in such volume, to depict the scenery over which you fly.

The result is a landscape that is a seamless snapshot of the real thing, so what you see is exactly what there is. Or, to be more accurate, what there was in 2000 and the few preceding years, when the photographic data was gathered in order to create the Millennium Map. (You'll notice the London Eye lying on its side over the Thames as you fly over this part of the South Bank, which dates this particular area to 1999.)

Mention has been made of a five-year program of rolling updates, which would be ideal for keeping the continually changing landscape of the UK up to date. Our friends north of the border might well feel aggrieved that Scotland is not among the areas featured, but we're assured that shutters are clicking in the Scottish skies and that it won't be too long before we can test our skills on a complete Land's End to John O'Groats flight.

Although the arrival of this scenery is significant for simulator pilots, it's perhaps even more so for real-world pilots; for the first time there is a very accurate method of training on PC simulators for cross-country VFR flights. A pilot can note the significant landmarks along the proposed route, and then reference them against a standard aeronautical sectional map, all without leaving the ground. VFR Photographic Scenery makes it possible to follow ground features such as roads, rivers and railways, and you can navigate from village to village. To the amazement of those who have previously regarded our hobby as something of a curiosity, you can fly along familiar roads and spot all those landmarks you've previously only seen from the ground.

The four different areas of coverage

The scenery is best viewed from about 1,500 to 3,000 feet and, surprisingly, had no adverse effect on those all-important frame rates. In fact, because there are no 3D objects included in the package, the frame count was generally higher than it was with the default scenery. You'd expect the view to be a little bland without these 3D objects, but as it happens the reverse is true. The natural shadows that occur within the photographic data give the scenery an apparently three-dimensional depth that cannot be simulated with autogen 3D objects, which always tend to look superimposed. Having said that, at some of the larger airports which feature a few buildings, the photographic carpet that sits under them provides an authentic backdrop that is almost impossible to simulate in the usual way.

It's easy to spot famous landmarks because they're where you expect them to be!

Over the M4 departing Heathrow

When compared to other scenery products, this is a monster; over 40,000 BMP images will consume a hefty 1.7Gb of your drive space. When you consider that this is only about a quarter of the UK, you start to get some idea of the scale of the imagery. Those who crave absolute detail may be slightly disappointed because the package doesn't contain any seasonal or time variations. This would entail taking several sets of aerial photos at the appropriate times to depict each of the seasons and times of the day, which, although desirable, is not really a practical consideration for a project of this scale.

The scenery is provided on three CDs, and future releases seem a likely candidate for DVD release. Installation takes a while, but is fully automatic, and well worth the wait. The area covered in this package extends East from a line at W0˚48.34', running north to south from Staithes (near Whitby, North Yorkshire), to Selsey (near Chichester, East Sussex). The following three volumes, which will cover the rest of England and Wales, will be released simultaneously soon after Christmas. ■

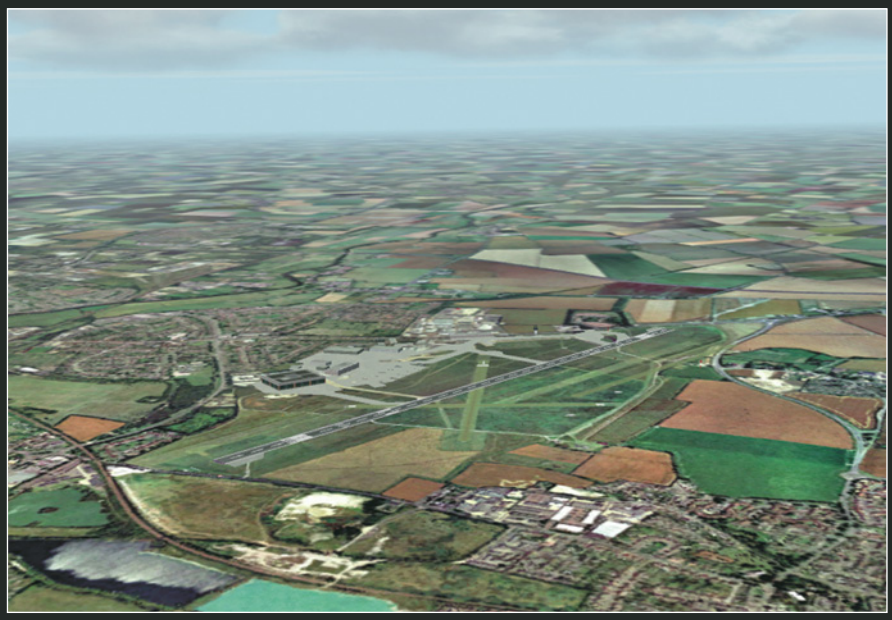
Joe Lavery

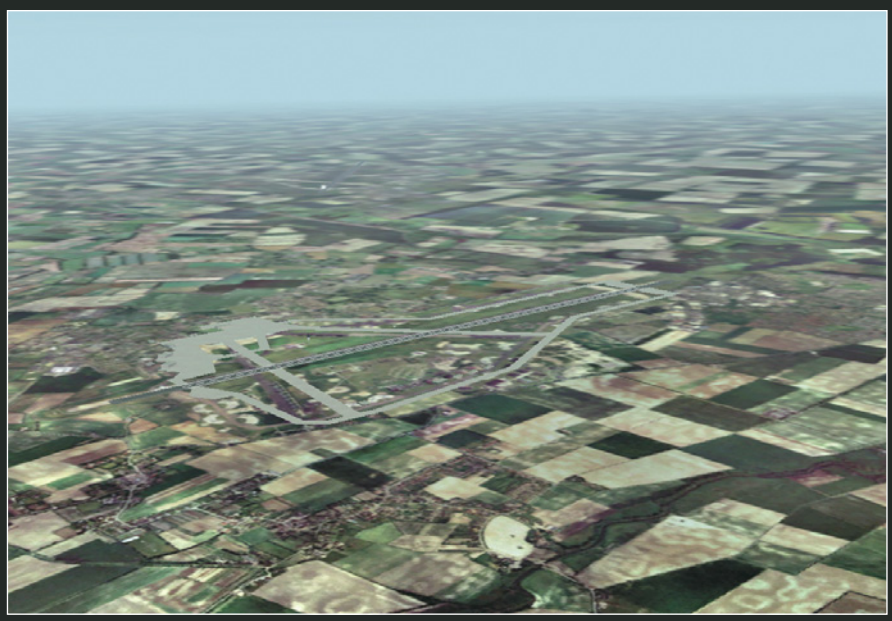
Certainly good enough for VFR training

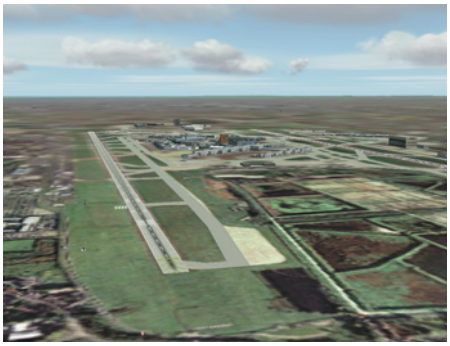
Over the Thames

Spot the field

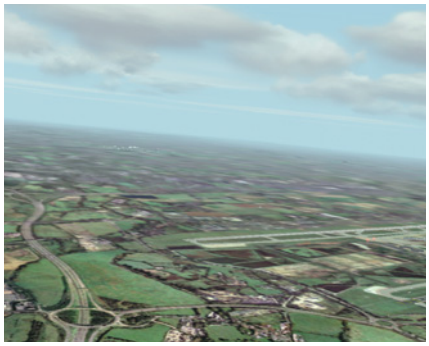
Many of us feel that the airports in the default FS scenery are always a little too well-defined, because they pop up in a most unrealistic manner. In reality you can be flying as close as one or two miles from an airfield and still not see it, perhaps because of hazy weather conditions or just because you're unfamiliar with the area. In FS they generally stand out like a sore thumb against the background, and are sometimes clearly visible from up to fifteen miles away. Thankfully this is not the case with the VFR Photographic Scenery; the airports blend in superbly, and really make you look for those important runway thresholds.







Heathrow airport – less definition at this altitude



The M25 near Heathrow – flying above it beats driving on it!

Review Score

Publisher: Just Flight

Price: £29.99

Website: www.justflight.com, www.getmapping.com, www.visualflight.co.uk

Developer: John Farrie (Visual Flight) & Getmapping PLC

At a glance: At last! VFR scenery that truly puts you in touch with reality.

System Requirements: PIII 700MHz, 128Mb RAM, 16Mb 3D graphics card

Recommended: P4 or Athlon XP 1GHz+, 256Mb RAM, 32Mb 3D graphics card

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Fancy a spin?

Marchetti SF.260

A lovely little mover

If reviewers have one failing (only one?), it's their inability to read manuals or follow the guidelines laid down by someone who obviously knows better… The first time we flew the superb Marchetti SF.260 from RealAir Simulations we jumped in the plane, fired up the engine, and off we went, with everything working as expected until it was time to bring her back again. So we carried out a nice approach, lined up on finals, and piled the aircraft into the ground about fifty feet from the runway.

If we'd bothered to look, we'd have seen in the excellent manual that the Marchetti is built for speed. Consequently the wings have very little lift at slow speeds, and the plane has a much higher stall speed than similarly-sized GA aircraft. This means the handling may be a little different to what you might expect, but it's simply a case of becoming familiar with its performance envelope; you need to keep the aircraft flying practically all the way to the runway. Or take a shovel with you.

The SF.260 was originally designed by the Italian Stelio Frati, and was derived from a wooden sports aircraft called the Falco. It has been used as a fighter-trainer by many of the world's air forces and is still in service today. RealAir Simulations have spent over 2,000 man-hours developing this universally acclaimed SF.260, fully realising their main objective of designing an FS2002 model that perfectly mimics the original aircraft in terms of its looks and performance – and has the ability to spin properly. A feat that,

Choose from the full IFR panel…

standard size…

or the mini-panel

as far as we're aware, has not been achieved before in flight simulation.

A stroll around the aircraft will tell you immediately that this is one of those classic models that is going to live on your hard drive for a long time. The smooth lines and beautifully drawn reflective textures are amongst the best you will see. They don't depict a pristine just-off-the-production-line aircraft, but instead the signs of wear and tear and oil stains give it that lived-in appearance. It doesn't matter which angle you view it from, or which part of the airframe you examine, the detail is remarkable.

You don't need to be told that the undercarriage cycles accurately and compresses on touchdown, or that the wheels rotate and the canopy opens, because these are features we've come to expect from a model of this quality. There are five liveries included in the package – three from the Belgian Air Force (in white, yellow, and camouflage), the Redhawks display team livery, and one based on the Air Combat USA colours. Incidentally,

Sleek and gorgeous – from any angle and in any colour

Combat USA has a small flight of SF.260s that you can fly in simulated combat situations (under supervision, of course). It's not exactly cheap, but it would be the flight of a lifetime.

The cockpit is just as impressively detailed as the exterior. Launching for the first time,

I hope you turned on the smoke… otherwise we're on fire!

you have a 2D IFR panel that almost fills the screen. This is supplemented with a standard-size panel and a fully rendered 'mini-panel' that provides a better view on take-off and landing. Of course, the best all-round view is provided by the virtual cockpit. While generally the downside to this feature is that you have to change views in order to access some of the controls, the designers have taken this into consideration, and pressing [Shift]-[F6] brings up a custom strip along the right-hand side of the screen containing prop and mixture controls, NAV 1, NAV 2, and DME, as well as OBS and HDG on the HSI.

By far the best attribute of this aircraft is its flight model; this is one of the very few simulated aircraft we've flown that somehow feels right. While this is one of those almost indefinable qualities, you simply know when the authors have got it right. There are so many factors that designers can inadvertently introduce which can make a simulated aeroplane almost unflyable, when in reality most aeroplanes will practically fly themselves once you set the controls. We find that many authors get the numbers right, but still the aeroplane feels all wrong. This is certainly not the case here; from the moment you taxi out to the runway, and through every phase of flight, she behaves impeccably. Response to the controls is instant and, when trimmed out, the SF.260 can practically be flown on the throttle.

The flight model and the smoke effects are sure to make the SF.260 first choice for aerobatics practice, and with such a large clear panel, and her inherent stability, the Marchetti is an ideal IFR trainer. But don't forget to read the manual... ■

Joe Lavery

Review Score

Publisher: RealAir Simulations

Price: $25.00 download (£16.00 approx.)

Website: www.realairsimulations.com

Developer: RealAir Simulations

At a glance: A refreshing change from the usual GA aircraft we see. A flawless package, and an FS first to boot.

System Requirements: PII 350MHz, 64Mb RAM, 32Mb 3D graphics card

Recommended: P4 or Athlon 1.5GHz, 256Mb RAM, GeForce3 or 4 graphics card

General Aviation Pack

A new six-pack from Abacus

It seems that flight simulator pilots are always looking to add to their aircraft stocks. Even though there are hundreds of aircraft and scenery packs already available, someone will be currently beavering away to improve an existing model, or perhaps to fill a gap with some missing variant. This almost insatiable thirst is fed by an equally inexhaustible supply, which brings us to the latest release from Abacus, containing half a dozen aircraft from the business end of the light aviation industry.

The PA-23 Aztec

These are mainly twin-engined prop aircraft that would usually be seen carrying executive or VIP personnel between engagements. Consequently they rarely fall into the sweaty hands of mere PPLs, because you'll need a fair bank balance to trundle down the runzway in one of these aircraft. The pack contains the Beech Model 50 Twin Bonanza, Cessna 310, Piper's PA-23 Aztec, PA-21 Navajo, and the single-engined PA-24 Comanche, and the Eclipse 500 Personal Jetliner. You also get a small but perfectly formed manual, and an enhanced scenery file depicting the Grassy Meadows Utah airfield, together with a few new flights.

If you can live with the visuals, the flight models are fine

Although there's nothing inherently wrong with the aircraft in this package, Abacus has not exactly stretched the boundaries with regard to the modelling, which at best could be described as adequate. The designs lack the attention to detail of recent releases from Dreamfleet, Carenado, or Flight One, and also bear more than a passing resemblance to the aircraft found in Abacus's earlier Sky Ranch release. Having said that, you do get six aircraft for your money, whereas in some cases you could pay the same for a single aircraft. This brings to mind that old adage of quantity rather than quality… or should that be the other way round?

Modelling is nothing to get excited about

On a more positive note, the cockpit interiors and panels are well crafted, with fully working instrumentation and, in most cases, virtual cockpit modes as well. Once you're airborne, you'll find that the flight models are stable and hold no nasty surprises. It's difficult to think of a great deal else to say about this package; it's just another aircraft collection that doesn't really contain anything you couldn't download free from the Net. While the quality of freeware aircraft keeps steadily improving, commercial products have to stand out in order to be worth buying. ■

Joe Lavery

Cockpits are an improvement on the exteriors – examples here from the Cessna 310 (left) and the PA-21 Navajo

Review Score

Publisher: Abacus

Price: £24.99

Website: www.abacuspub.com

Developer: Abacus

At a glance: Six more aircraft for your hangar, but ultimately a lacklustre product. You're sure to find freeware examples which are at least of equal quality.

System Requirements: PII 300MHz, 128Mb RAM, 3D graphics card

Recommended: PIII or Athlon 700MHz, 256Mb RAM, 32Mb 3D graphics card

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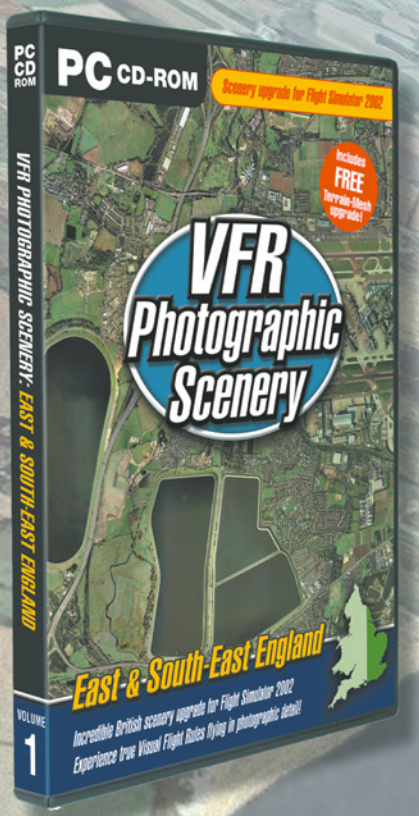
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Minimum PC specification is quite high since the limits of the simulator are being pushed: Multimedia PC with Pentium III 700 MHz (equivalent or higher) processor. Graphics card with 16MB (or higher) video memory, 3D hardware acceleration and DirectX 8.0A compatible drivers. Operating System: Windows 98, ME, 2000, XP (as supported by MSFS2002). 64MB RAM (128MB for Windows 2000 and Windows XP). Super VGA monitor supporting 800x600 resolution/16-bit colour (or better). DirectX8.0A (or later). Approximately 650MB free space on hard disk.

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Polikarpov I-16 in its natural habitat

Operation Barbarossa

The Emperor's new missions

Some history books have described it as "the greatest land battle mankind has ever fought". Unternehmen Barbarossa, the invasion of Russia, began on 22 June 1941, when three million German troops and 3,300 German tanks rolled over the border to face 230 divisions of Russian troops, each comprised of 14,000 men, and 20,000 Red Army tanks. On only the second day of the operation, the Luftwaffe destroyed more than 2,000 Russian aircraft. When the German army retreated four years later, Hitler had learned the same lesson as Napoleon – underestimating the resolve of the Russian people and the harshness of their climate is a fatal mistake.

More missions than you can shake a cannon shell at

Just Flight's Operation Barbarossa, developed by Steffen Trombke, is a mission and campaign expansion for IL-2 Sturmovik that gives you the chance to immerse yourself in this epic conflict as a pilot in the Luftwaffe. Some of the campaign originally appeared on the Net as freeware, but this was purely for online combat. The boxed version of Barbarossa is fully playable whether you're connected to the Net or not.

Given the scale of the actual operation, the developers have done a sterling job in translating it to the PC. The expansion includes no less than 230 missions in the campaign, running from 1941-1945, and 390 in single-player mode. Some additional fictional missions are also included – 28 flying for the Luftwaffe and 34 for the Russian VVD. Operation Barbarossa brings with it 64 historically accurate custom skins for the Fw 190 and Me 109 (the planes you fly exclusively in the expansion) in multiplayer co-op mode, and a number of special new dogfight maps.

Brief
John 'Mad' Doe
Date: 16.10.1941
Time: 04:00 p.m.
Weather: bad
The battle for Moscow starts! Novoptrovskoye will be attacked from the north by the 4th Panzergruppe and the 129th Inf Div. Three Panzerdivisionen will advance from the west, supported by the 23rd motorised.
We will patrol the sky over the city and deal with any enemy resistance that shows up. Get going!
Primary: Recon
Back
Difficulty
Arming
Fly

Mission briefing – all you have to do is obey orders

Although there's plenty of shooting and bombing to be done, the real strength of this expansion lies in conveying just what life as a combat pilot was really like. The missions cover everything, from escorting supply gliders and running transfer flights from one base to another to the more usual close air support missions, recon sorties and, of course, air superiority tasks. Additionally, these missions all take place over realistic geographic areas. It's not unusual for a pilot to take an hour or more to arrive on station, and this lends a very tense edge to the missions – you are fighting not only for your life, but also for efficient use and conservation of quite limited fuel supplies.

Naval missions are also included

Gun jockeys may find the hours of event-free flight quite dull, and so IL-2's speed-up feature comes in very handy for breaking the tedium. When combat does occur, though, it's usually on a grand scale, very fast, and highly confusing – just the way it should be. If you have a slightly underpowered PC, be prepared to turn the detail levels down further still; Operation Barbarossa's real battles were huge, and so are many of those contained here.

Overall, Operation Barbarossa does a great job at conveying the enormity of the task the Luftwaffe undertook. If you are prepared to dedicate your time to it, this package will repay you in spades with some staggering new IL-2 experiences. ■

Peter Wright

Review Score

Publisher: Just Flight

Price: £19.99

Website: www.justflight.com

Developer: Steffen Trombke

At a glance: A real feast of missions to supplement the already strong campaign element of IL-2.

System Requirements: PII 400MHz, 128Mb RAM, 16Mb 3D graphics card, IL-2 Sturmovik

Recommended: PIII 1GHz, 256Mb RAM, 64Mb 3D graphics card

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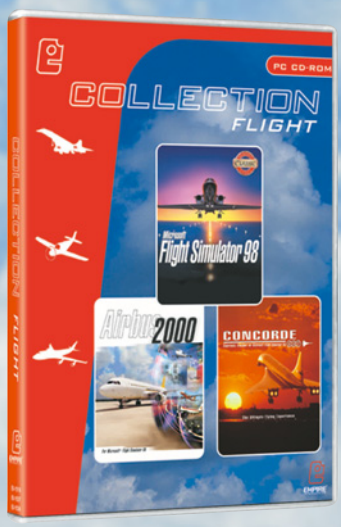

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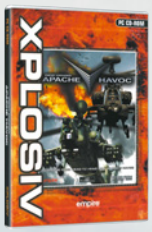

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Strike Fighters Project 1

Does Project 1 equal Project Fun?

Expectations can be wonderful and dangerous things. We were really looking forward to getting our hands on this year's standalone jet sim – it seems a long time since Eurofighter Typhoon flew onto our desktops – and we were beginning to itch for some boom and zoom action (whatever that is).

The disastrous early release of Strike Fighters in US Wal-Mart shops in August didn't bode well. We then heard that the 'final' version was being released, patched up better than the knees of a schoolboy's trousers. Early reports suggested that this version was still not the finished article, and the UK publisher, Just Flight, announced that after assessing the software they felt a further patch was necessary and would be holding off their release until February 2003. We stepped into this confusion with all the innocence of a prospective buyer, and our trembling hands loaded a CD of the second US version into our PC. It didn't blow up, and while Strike Fighters is far from perfect, it's certainly not the disappointment that a couple of flimsy reviews would lead you to expect.

Strike Fighters is the creation of Third Wire Productions, headed by the famous Tsuyoshi Kawahito, or TK as he's better known. Incidentally, the daft name (what's Project 2?) is a combination of the developer's choice and that of Strategy First, the US publisher. One wanted Strike Fighters, while the other preferred Project 1; in the end they compromised. TK is something of a legend in certain quarters of the flight sim industry, having been a prominent figure in the development of both Jane's Longbow II and European Air War, and his disappointment over the Wal-Mart release was only too evident from some of his forum postings. Was this final US release of Strike Fighters the sim he and his team wanted, or had commercial factors dictated another early release in time for the Christmas sales boom?

It may come as a surprise, but the installation is pretty much perfect and even has an interesting option that allows you to install it at Easy/Arcade, Normal or Difficult level. You can make your choice at this point, or leave it until later. The rest of the installation is seamless, and as a familiar-looking main screen materialised we began

Once you've decided on a mission, it's off to the hangar to get briefed and bomb up

The mighty Phantom – this is what we've been waiting for!

You can't fault the shiny aircraft textures in Strike Fighters

The Beagle still sports gun turrets in an air-to-air war

There are tin cans to be found if you look hard enough

Pilots with minds of their own – their heads move separately

to wonder what all the fuss was about. There's no opening movie, which will probably please or annoy in equal measure.

Strike Fighters is set during a fictional 1960s, and bears more than a passing resemblance to a Vietnam-era sim. It doesn't actually take place in Vietnam, though, but rather in the fictional Mazadran Desert. Perhaps it's another theatre of war that the developers were thinking of; the manual outlines the sole campaign, named Burning Sands, thus: "Two proud nations, one oil-rich desert, one very old conflict." We would never be cynical enough to suggest that a desert is much easier to model than a jungle, but it would certainly have improved the general look of the terrain if political correctness hadn't decreed that Vietnam is not a fit subject for a 'video game'.

Flower power planes

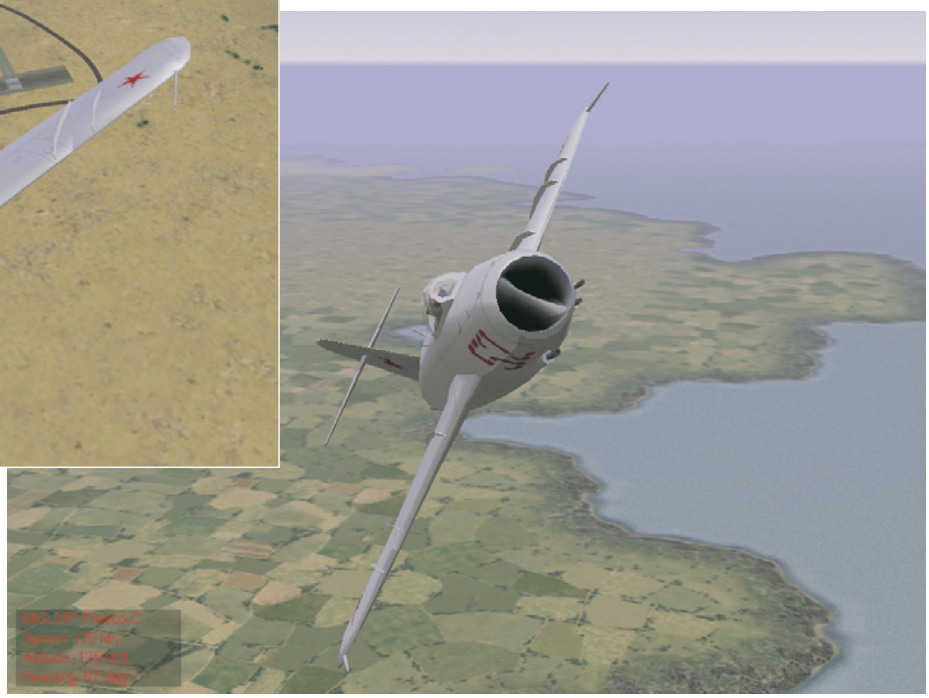
The four flyable aircraft – a Navy A-4 Skyhawk, the USAF's F-104 Starfighter, the F-100 Super Sabre, and the F-4 Phantom II – offer a range of American aircraft demonstrating different degrees of technological advancement. You'll find yourself up against a variety of MiGs, bombers and fighter-bombers, while a B-57 Canberra and C-130 Hercules add a bit of variety to the friendly AI hangar. This highlights the first major limitation of Strike Fighters, and it's got nothing to do with bugs. The action is very much one-sided, in that you can only fly for the US, albeit as Navy, Air Force or Marines, and in just one campaign. You can also fly as a mercenary pilot (or you should be able to!) but your career as a gun for hire is limited to the Burning Sands campaign.

According to the manual, the campaign is dynamically generated, and it's length is up to you (anywhere between fifteen and sixty missions), as is the difficulty level. The campaign always begins at around the same historical point in time, so you'll always be starting in a Phantom, whether or not you might prefer to begin in the Skyhawk era. While they are indeed dynamic, it's not possible to see the overall progress of the campaign, either in the air or on the ground. Even though the campaign is fictional, you're left with a peculiarly disconnected feeling with regard to the war you're waging. While it's fair to argue that real-world pilots weren't always aware of the bigger picture, after seeing such great campaigns as those in Eurofighter Typhoon and Falcon – both of which show detailed goings-on in the theatre – it's a shame that such personal connectivity is absent from Strike Fighters.

All is not lost, however, as the Instant Action mode lets you leap aboard your chosen aircraft and start mixing it in a randomly generated mission. For those who prefer a more ordered existence, there are a set of single missions which you can get your teeth into, with six available for the Skyhawk, but ten for the other aircraft. Why the Skyhawk misses out on the delights of Fighter Sweep, CAP, Intercept and Escort is not fully explained by the otherwise comprehensive manual. It's probably because the Skyhawk was a bomber, and the other missions are not principally aimed at ground targets.

Apparently the game allows a multiplayer mode, with connections over a Local Area Network, or on the Internet using GameSpy Arcade, but even with the latest edition of GameSpy Arcade Strike Fighters refused to

A MiG-17 Fresco over its home base



A MiG over the Mekong, or is it Weymouth?

From the driver's seat

The cockpits are the saving grace of Strike Fighters – nothing to fiddle with but they look the part and the sights work well.

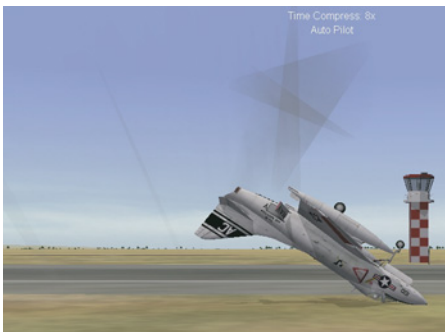
The F-100 Super Sabre – an updated Korean veteran

The Sabre's gunsight

The A-4 – not DreamFleet but not bad

The Phantom's office – chunky but funky

Sit here and pilot a Starfighter to Mach 2



No, we don't know why this kept happening either

work, either from within the game itself, or from the GameSpy application, which didn't even recognise the program. We're therefore unable to enlighten you about the multiplayer side of the game, but you should be able to take part in dogfights or co-operative single missions.

One of the more obvious hints that this is an unfinished product is the lack of AAA or SAM (surface-to-air-missile) units, and their absence removes a considerable amount of the tension involved in modern air combat. Why worry about attacking that bridge if there's no AAA or SAMs to keep you on your toes? While there's opposition in the air (albeit of questionable quality), nothing to worry you on the ground is severely limiting. We're told that the much-vaunted patch will cure this in the next (final?) version.

While the graphics in Strike Fighters are decent enough, if somewhat post-apocalyptic, they exhibit the kind of tears and anomalies which we haven't seen in quite some time. While the aircraft look fantastic, the terrain can be summed up simply as bland. Whether cities, airports or water, there's little here that stands out. It also doesn't react very realistically to large fireworks being thrown at it; there are no ground explosions that we could see, and a plane diving into the deck just produces a whoosh of flame.

Other anomalies, such as the lack of appreciable engine noise when not using the afterburner, aren't quite so glaring, but no less enervating. The sound effects also fall into the bland category, and are rather odd. While normal engine sounds are rather feeble, the afterburner sound effect actually sounds like a cannon. Every time you hit the afterburner you have to take a look over your shoulder to check whether you're under fire. The cannon effects are decidedly feeble – more airgun than 20mm armament.

The flight models are actually pretty good, and the Phantom flies a lot better than the Starfighter, which is little more than a rocket with limited manoeuvrability. Planes stall realistically and are difficult to recover, so a healthy amount of altitude is useful. Rudder functions work as they should, helping you change your orientation quickly, and overall the flight modelling is one of the bright spots of this sim. A couple of tight turns will soon make you realise just how difficult jet combat was at this point in history.

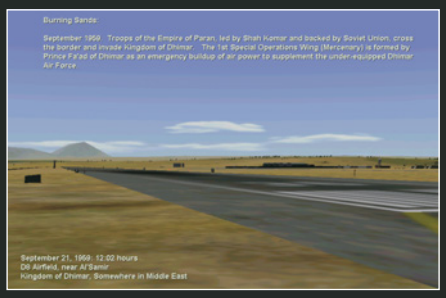
Weapons modelling would appear to be accurate, as the arcane missiles of the era do seem to miss more often than they hit. Cannon ballistics are also modelled well, as the time of flight and gravitational pull both affect the shell's path realistically. Unfortunately, this is undermined by somewhat unusual damage modelling; on several occasions we noticed that one shot from the cannon would bring down an opponent. Admittedly, we're supremely gifted flyers (ahem!), but even we were surprised by our own prowess!

Simplistic damage modelling won't impress today's flyers

Mystifying damage model – we flew this wrecked plane right through a mission!

We make money the old-fashioned way – we kill for it

Strike Fighters features a novel mercenary option that allows you to fight the single campaign as a mercenary. If anyone remembers the old Origin sim, Strike Commander, then you'll have a good idea of what we're talking about. If your memory isn't as dangerously retentive, then it goes like this: you start off with a sum of money to purchase new missiles, ammunition, aircraft, and other weapons. You then fight for cash and pile up your blood money as the campaign progresses. Fairly simple, if a little unlikely. It sounds like a lot of fun, and it probably would be... if it worked. Unfortunately it doesn't, and the bug lies in a fairly fundamental area of a mercenary's career – the collecting of cash! When a mercenary successfully completes a mission, funds are supposed to be added to their account to help pay for supplies, but this wasn't the case in the version we reviewed, although it's on the list for the Uberpatch that we can only hope is due out very soon.



A mercenary that fights for free?

Artificial lack of intelligence

The AI can often be puzzling. Enemy MiGs might stay on your tail and line up a shot, displaying quite effective gunnery skills, but at other times, enemies will head for the ceiling for no apparent reason, punching their afterburner and quickly (maybe too quickly) gaining altitude, only to begin a descent as soon as they hit their operational ceiling. Somersaulting aircraft sometimes spin and leap above airfields, some planes seem intent on flying around aimlessly in tight circles, and some of your own wingmen are prone to bizarre flights of fancy.

Unfortunately, certain features of the in-game interface can impede whatever fun is left to be had. The 92 (yes, 92) keyboard commands are somewhat cryptic, and while they can be remapped, it's rather annoying to have to do so. While some keys, such as [Tab] to open the communication menu, make sense, others, such as the [Esc] key quitting the game entirely, rather than simply opening up some sort of options menu, are somewhat infuriating. Snap views are very strict, and can't be combined with other views (i.e. right AND up).

You might be wondering if we have anything good to say about Strike Fighters, but while the program is indeed lacking in some areas, it does have its bright spots. There is a huge amount of goodwill towards it in the many forums, and hardcore jet combat fans who have been starved for many years will treat this slightly indigestible morsel as manna from heaven. There's a lot of entertainment to be had from flying the single and instant-action missions, and the dogfights can be both entertaining and challenging with the right combination of aircraft.

Worth a punt, or not with a bargepole?

The one factor that might ultimately redeem Strike Fighters is its open architecture; it allows the easy creation of add-ons, and enough interested authors might well be able to add the necessary elements to secure a devoted following. Several sites are already in the process of creating new aircraft, and we've heard talk of add-ons in development, but it's hard not to wonder where any major support is likely to come from.

The Starfighter – a missile with a man in it

The mirror's handy for watching your six and checking your make-up

That's close enough, my friend!

Just Flight are to be applauded for refusing to release the current version in the UK until it's fully patched. Whether this will gain them plaudits from the fans or mean that they lose out to Lock On is hard to say; it might well depend on what Ubi Soft come up with, although the changes in Lock On's release date seems to indicate that Ubi Soft aren't willing to put a sim on the market that they're not happy with. Hardcore fans of the sort of flying you saw in That Jet Fighter Film Starring Tom Cruise have been starved of action for so long that they'd probably be tempted to buy a wire-frame DOS sim if you put it in a box, but the savvy jet combat fan could hardly be blamed for saving his money and waiting to see what Lock On has to offer. Falcon OIR and Falcon V have both become vapourware, it seems, so Strike Fighters remains a worthy contender, but one with a few cuts that will need attention before the bell rings for round three. ■

Brian Rubin/Derek Smalls

Review Score

Publisher: Strategy First

Price: £29.99 On UK release

Website: www.strategyfirst.com

Developer: Third Wire Productions

At a glance: While it has a few bright spots, this is currently an engine to be built upon rather than a good standalone simulation. Wait for the 'final' release and fly something more complete!

System Requirements: PII 400MHz, 64Mb RAM, DirectX 8.1, 16Mb 3D graphics card

Recommended: PIII 1GHz+, 256Mb RAM, 64Mb 3D graphics card

Commuter Airlines Eurowings Professional

Beats catching the Tube!

In the steady stream of GA and commercial aircraft produced recently by the major developers, one area that seems to have been largely overlooked is that of commuter airlines that fly short-haul flights between regional and Capital cities. Their fleets generally consist of smaller, lighter and quieter jets and turboprops than the heavy metal, and Aerosoft has redressed the balance with a new package that depicts a regional airline (Eurowings Luftverkehrs AG), complete with seven new aircraft and six major airports scattered around Europe.

The aircraft are all modelled to a very high standard, complete with rolling wheels, animated flaps, and undercarriages that cycle in a realistic manner – all the usual refinements we've come to accept as a matter of course these days. We particularly liked the passenger doors on the BAe 146, where the hand rail folds out to reveal a stewardess waiting to welcome you on board. But before we get too carried away, here's a quick rundown of the aircraft you get in the package, an A319-100 Airbus, ATR-42-300/500, ATR-72-200/212/500 and a BAe 146-200.

Each aircraft is supplied with at least one extra livery, and in most cases there are many more; the BAe 146., for example, comes with, Air France, British Airways, Eurowings, Lufthansa, Northwest, Qantas Link, SN Brussels, Swissair and United Express liveries. They are not finished to a pristine showroom condition, but exhibit the stains and wear and tear that is typical of working aircraft. The textures used are cleverly designed to depict a higher level of detail in the airframes than actually exists, which is not an easy thing to achieve but gives you the impression of a nicely detailed aircraft that doesn't impact too much on frame rates.

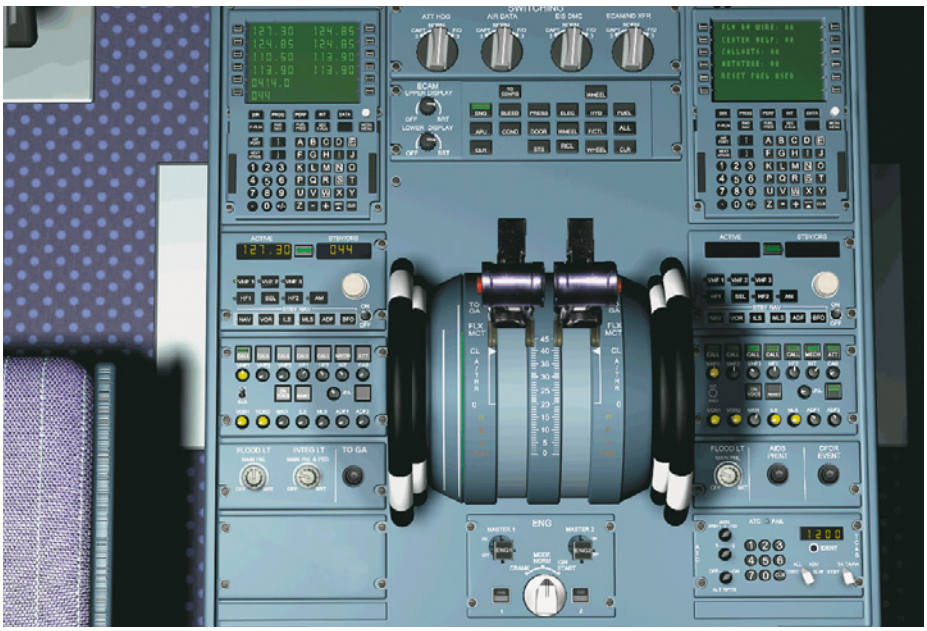
It's inside the cockpits that the authors have really concentrated their efforts, with control panels based on photographic data that really are superb. We're told they took several thousand hours to complete, and it certainly shows. It's quite difficult to incorporate photographs in this manner without making the instruments look as though they were simply stuck on the panel, but it's been done brilliantly.

Essentially three different cockpit layouts are provided, because the ATR variants use practically the same panel, with just a few minor differences. They all incorporate overhead, engine and lower console panels with more working switches, gauges and buttons than we've seen before. Unfortunately, due to the constraints of FS2002, they do not all have an effect on the aircraft.

The FMC is borrowed from DreamFleet's 737-400, but it's one of the best examples of

Air France passengers in their A319-100

The BAe 146-200 - four engines are better than two!



The A319 – superb FMCs, but that carpet!

a simulated FMC and works perfectly well in its new surroundings. It comes with a comprehensive forty-page manual in PDF format that you'll need to read, or you won't be going anywhere (at least not under IFR rules!) If we had to be really picky, then the lack of any virtual panels is an omission that might just put off users who are passionate about this mode of flying.

Paris is always a great location for a weekend break, and the main arrival point for most visitors would be Charles de Gaulle airport; Aerosoft's rendition is very nicely modelled, with all the major buildings depicted in great detail. The large round domestic terminal, with its satellite gates spreading out from the centre hub, is accurately modelled, and there are plenty of vehicles and parked aircraft to add to the atmosphere. If we travel about 700 miles south, we come to the island of Sardinia and the Olbia airport, which we understand was included because the authors are fond of it.

The designers have really pulled out all the stops at Berlin's Tempelhof, where you'll find dozens of custom buildings, detailed both inside and out to a remarkable level. Just step inside the main departure hall and you'll see rows of seats and animated information boards hanging from the ceiling. A short hop south-west finds Dortmund

What the ATR pilot saw!

The ATR's top panel is topping

airport, the home of the real Eurowings, subject to the same lavish treatment, with the emphasis on the new terminal.

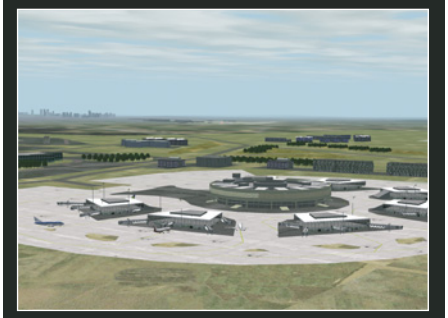
Amsterdam's Schiphol airport is possibly the most detailed of all – the gates, air bridges and terminal buildings are just brilliant. As you slew around it's easy to become blasé about these details, but it's clear that a phenomenal amount of time and effort has gone into achieving this level of realism. Crossing the Channel to Stansted takes us to another airport that's seen enormous changes over the last few years; here again the modelling is both accurate and full of the little details that breathe life into the FS world.

It's not often that we see such a complete package – one that contains quality aircraft and equally superb scenery; either component of Commuter Airlines could very well be marketed independently, and together they really do make a superb collection. Finally, it's refreshing to see a proper manual included with the package; this one extends to over 140 pages, and includes a fully illustrated guide to all the cockpits, detailed checklists for each aircraft and Jeppesen approach plates/schematics for every airport. A pleasing finishing touch to a impressive expansion. ■

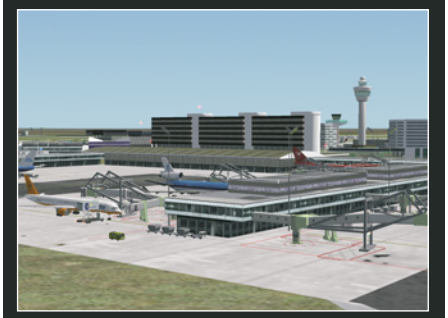
Joe Lavery

Quality aircraft, quality scenery!

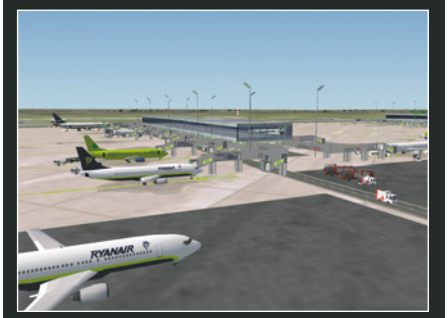
Ich bin ein Berliner



Paris Charles de Gaulle - Bienvenu à Paris



Amsterdam Schiphol - bulb fields ahoy!



London Stansted - more grass than we're used to!

Review Score

Publisher: Aerosoft

Price: £24.95

Website: http://aerosoft.de

Developer: Jürgen Weinberger

At a glance: Aircraft and scenery are both of the highest quality, and an excellent manual is the icing on the cake.

System Requirements: PIII 600MHz, 128Mb RAM, 515Mb hard drive space

Recommended: P4 or Athlon 1.7GHz +, 256Mb RAM, 64Mb 3D graphics card

Fly To Hawaii

Fun in the sun all year round

Think about Hawaii and you normally conjure up images of sea, sand and perpetual sunshine. It's been a popular holiday destination for years, but the only problem with Hawaii is its location – it's almost in the middle of the Pacific Ocean and requires you to undertake a significant flight to get there from almost every direction.

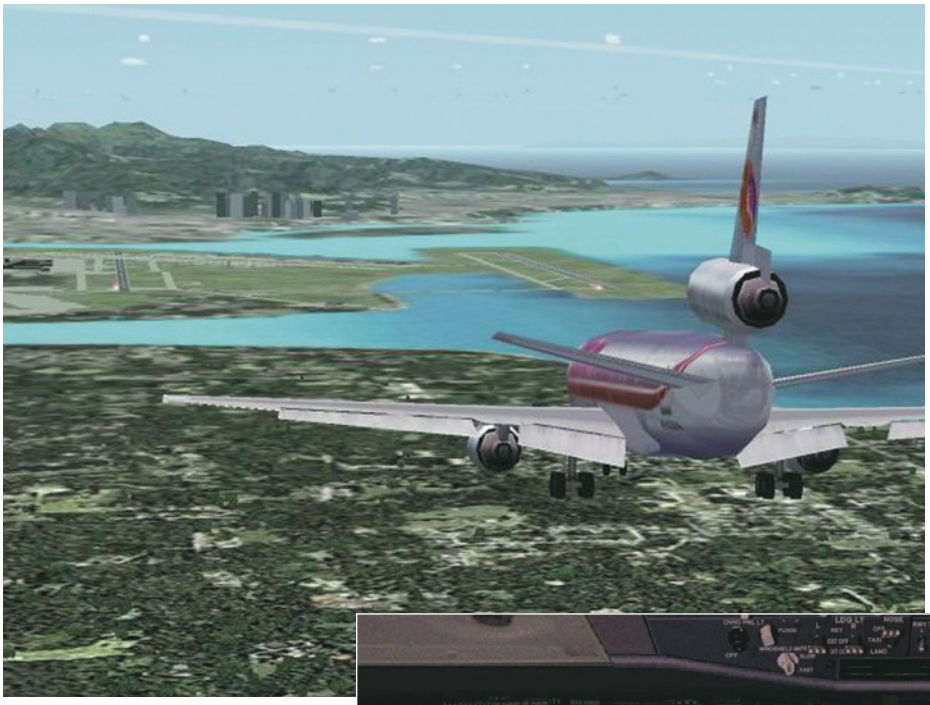
This is where FlightSoft's latest release can help, as it offers you the opportunity to try such flights, not only into the numerous airports in the Hawaiian island chain, but also into some of the world's most renowned airports, with Los Angeles International, JFK and Hong Kong among them. Fly To Hawaii provides you with thirteen variants of the classic DC-10 jetliner, ATC recorded from real-life sources, 65 semi-automated approach situations, over 100 real-world flight plans, and authentic DC-10 engine sounds.

Banking right with the DC-10 panel looking busy

Installation places all the aircraft, with their respective sounds and panels, directly into Flight Simulator for you, and also places copies of flight plan documents on your hard drive along with some extensive documentation; this is handy reference material, although it does consume about 300Mb of hard drive space on it's own! The aircraft take up another 600Mb, so ensure you have a fair amount of disk space available before you start installing.

The aircraft themselves look good, although they are not gmax models. They do lack some features we are becoming used to seeing, such as animated thrust reversers and opening doors, but all of the aircraft do get nicely animated flaps, landing gear, rolling wheels, elevators and so on. The textures could be sharper, and some of the add-on scenery buildings are not as detailed as they could be, but the photorealistic main panel is easy to use, and the manuals provide all the necessary details about the functioning and location of the relevant flight instruments.

There is no virtual panel provided, so you will have to make do with the default 2D panel for flying. Panel components such as the throttle console, overhead and radio panels can be brought up with toggle switches, one of which will also bring up the INS (Inertial Navigation System). The sounds effects for the aircraft are truly superb; as well as enjoying the really deep



Lined up on final approach to Honolulu International

Rolling out for the start of the holidays

National DC-10 on short finals for an early evening landing

Night approach in the DC-10

rumble when flying, the great sounds used when you are deploying the slats and flaps will make you think they really are sliding out of the wings on final approach.

We found that the flight dynamics were excellent; the DC-10s feel genuinely 'heavy' when being flown or handled on the ground, and you really do have to put some effort into getting one of these aircraft down onto the runway. You will have to manually trim the aircraft, obviously, but you soon get used to its characteristics and have a good setup tuned in. The beauty of the DC-10s is that there are no modern FMCs in the flight deck, so you will have to learn how to use its 'old' navigation system, which is quite simple once you get used to it. A GPS is also included.

One of the pleasing aspects of this package is the provision of APLC-generated adventures/flights which allow you to load up some fantastic approaches to some great airports and then land with or without the autopilot. In some cases your co-pilot will actually talk you through the approach, telling you what speeds to select, what the flap settings should be, and which headings to use. This is great fun, as it makes you feel that you have some company in the cockpit. One thing to be wary of when selecting the adventures is that some of them can be found in the FS2000 adventures selection area.

Leaving sunny Hawaii in the airline's anniversary paint scheme

You can expect this package to keep you entertained for a while, and it certainly encourages you to try and fly the 'big iron' properly. One small gripe is that the aircraft themselves look a little dated, but you can easily forgive this once you get airborne. The approach flights and audio accompaniments really enhance your flying experience, and overall this is an ideal way of catching up on some winter sunshine. ■

Chris W. Balmer

The colour of the sea should tell you this isn't Blackpool!

Review Score

Publisher: FlightSoft

Price: $34.95 (£22.00 approx.) plus p&p

Website: www.flightsoft.com

Developer: FlightSoft

At a glance: A useful package for DC-10 fans, with some excellent adventures and flights. Let down slightly by some dated-looking aircraft, but enjoyable nonetheless.

System Requirements: PII 450MHz, 64Mb RAM, 8Mb graphics card

Recommended: PIII 700 MHz, 128Mb Ram, 64Mb graphics card

Airlines Two

Watch out, Richard Branson!

The world is your oyster, but only in First Class

Choose your fleet with care

If flying for your virtual airline is no longer challenging enough, and you fancy trying your hand at becoming the next Stelios Haji-Ioannou, then line up for an ILS approach with Airlines Two. This management simulation lets you build up a small regional carrier into a worldwide airline empire.

Of course you have to start small, and everything begins at one of the fifteen regions that the globe is divided into, of which six are initially available. From the main interface you can zoom in to see all the airports in this region, or zoom right out to view the whole planet and effortlessly spin it with a click and drag of the mouse.

Money, money, money – that's what it's all about

This is the main graphical interface, with additional screens showing your financial situation and listing your assets: routes, aircraft and airports.

Before cutting the ribbon to open up your first route, you'll have to research a few airports to find out what the punters want. Initially, six airports are already researched, but it pays to look into others so you don't miss out on any lucrative possibilities. Most aircraft carry a combination of passengers and cargo, and it's often the latter that can generate the serious money. The airport information screen shows you what passengers want – low fares and/or high service – and also which commodities are for sale or are in short supply. It's a matter of mixing and matching to create profitable routes, and this is the key to Airlines Two.

Creating a route involves selecting departure and destination airports; initially these have to be within your regions, but once business starts looking up you'll be able to fly into neighbouring regions. This is achieved by fostering 'goodwill' by way of low fares, high service, airline offices and fancy HQ buildings. Once you can start spreading your wings the possibilities become far more attractive, and keeping track of your empire becomes ever more difficult. You must decide which cargo to carry on any route and set passenger fares and service levels, then it's just a matter of choosing an aircraft for the route from the list currently available.

Shut down non-profitable routes or suffer the financial consequences

Starting in the 1960s and progressing through to 2005 means that there are continuous improvements in aircraft technology. Keeping your old fleet increases the risk of aircraft crashes, while newer aircraft can fly faster and carry more – although at a price.

Once you've set up a few routes then you can dabble in the stock market, buying shares in other airlines or industrial giants, or floating some of your own shares to generate extra revenue. The bank will happily loan you cash, and the repayment rates can be adjusted to suit your current cash flow situation.

Spread your corporate web across the globe

That's basically it: create routes, expand into new territories, take care of your fleet, play the stock market, and keep an eye on the competition. The interface is slick, although frustratingly limited to 800x600, and the sound is functional but uninspiring. Airlines Two is certainly a competent and challenging airline simulation, but lacks the excitement, humour and unpredictability that can make management simulations so much fun. ■

Kenji Takeda

Review Score

Publisher: Take 2

Price: £19.99

Website: www.take2games.co.uk

Developer: InterActive Vision A/S

At a glance: A straightforward airline management simulator. Involving, but lacking the excitement and fun factor that keep you coming back for more.

System Requirements: Windows 98/ME/XP, PII 500MHz, 64Mb RAM, 32Mb 3D graphics card, DirectX 8.0a

Recommended: PII 750MHz, 128Mb RAM, 64Mb 3D graphics card

Battlefield 1942

Combat career choices

It seems that first-person shooter fans aren't currently getting enough action; this best-selling bullet fest allows you to drive, pilot and sail over 35 different vehicles, and choose from 19 handheld weapons, with up to 64 players online. Battlefield 1942 is aimed quite squarely at multiplayer action and is similar to World War II Online, which we looked at in our recent feature on online combat. You can wage war across 16 huge maps covering the major theatres of WWII, in a host of different scenarios from El Alamein and Midway to Kursk and the Battle of the Bulge.

Before battle commences you are presented with a map screen showing several possible character options: scout, assault, anti-tank, engineer and medic. Once you've selected a role you must specify a 'spawn' point on the map; this is a friendly post to which your character will be transported in a few seconds, and can be on land or at sea – on board a battleship, for example. That's when the action starts. All of a sudden you're surrounded by ricocheting bullets, roaring tank engines and the shouts of your mates.

The default controls are the usual mouse and WASD keys found in most shoot-em-ups, which work well for infantry ops and when hopping into the nearest tank.

Keep your eyes peeled for marauding aircraft

It's quite a job just keeping it in the air

Close air support is harder than it looks

In single-player mode all other soldiers are referred to as 'bots' and are modelled as AI players, revealing the multiplayer origins of the game. They behave reasonably realistically, and taking on enemy forces is certainly challenging on the hardest levels. In a typical area of operations a variety of hardware can be found: tanks, jeeps, and – of course – aeroplanes. We naturally headed straight for the first winged beast we could find to take it up for a spin – quite literally!

Pick a spawn point and get ready for action…

The manual recommends flying aircraft using the mouse, which is nigh on impossible for all but the most practised, and even using the keyboard arrow keys isn't much better. Fortunately you can use a joystick, although you have to configure this separately in the Control Options. Even then, a Japanese Zero behaves more like a hypersonic fighter, requiring an extremely deft touch. The aircraft fly so fast that it is supremely difficult to bomb accurately, and strafing ground troops requires more luck than judgement.

Battlefield 1942 really shines when you go online to take on some real opponents, although this requires at least a version 1.1 patch, which is a hefty 15Mb download. With support for 64 players, this can make for some thrilling engagements, although a limit of 16 players is more realistic for modem users. As with all online experiences, slow or unreliable connections can cause problems such as stuttering, where players appear to stand still and then leap a hundred feet in a single bound.

Dish out that flak for a change

What Battlefield 1942 really provides is feature-rich multiplayer mayhem for infantry and tank battles, and it can be great fun – try out the demos on the CD. Unfortunately the aircraft modelling is nowhere near as complete as it is in World War II Online, and if you just want to fly close WWII air support missions, then it's safe to say that a dedicated sim such as CFS3 or IL-2 Sturmovik will provide a far more realistic environment. ■

Kenji Takeda

Vehicles, weapons, theatre and combat role – you're spoilt for choice

Review Score

Publisher: Electronic Arts

Price: £29.99

Website: www.battlefield1942.com

Developer: Digital Illusions

At a glance: A good-looking all-action multiplayer skirmish that will keep the adrenalin pumping, and with plenty of vehicles to boot. Online play is great fun, but a flight sim this certainly isn't.

System Requirements: PII 500MHz, 128Mb RAM, 32Mb 3D T&L graphics card, DirectX 8.1

Recommended: P4 1.2GHz, 256Mb RAM, 64Mb T&L graphics card

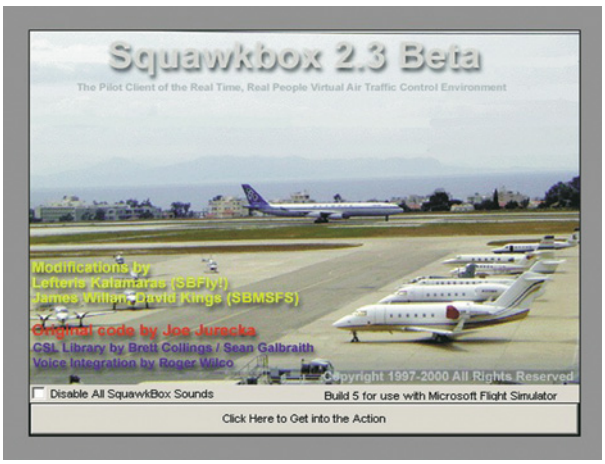
Flying with VATSIM

Raising your flying experience to a new level

Let's face it – desktop flying on your own can lack that sense of interaction experienced by real-world pilots. Microsoft's latest and greatest has, of course, adapted new advances in software technology to provide ground-breaking Air Traffic Control and AI aircraft, but the FS2002 ATC system has been a disappointment to many. As always, you feel the need for even more – more realism, more interaction, and more personal contact. This is where VATSIM fits in.

VATSIM stands for the Virtual Air Traffic Simulation network, and is a collection of Internet servers, systems (and people!) designed to enable FS and ATC enthusiasts to mutually benefit each other in a friendly community environment. Essentially, pilots and controllers connect to the same network and use two separate programs to interact and mimic real-world flight operations. The controllers are responsible for aircraft flying within their airspace, and monitor them during IFR flight between their departure and arrival airports.

Pilots flying online with VATSIM enjoy a remarkable experience. The world of flight simulation is transformed from one containing a few AI aircraft and limited, almost scripted, ATC to one providing a far more realistic air traffic environment – totally interactive, and complete with eager pilots and enthusiastic professional ATC. First-time flyers and observers are always astonished at the realism.


Squawkbox 2.3 Beta
The Pilot Client of the Real Time, Real People Virtual Air Traffic Control Environment
Modifications by
Lefteris Kalamaras (SBFly!)
James Willan, David Kings (SBMSFS)
Original code by Joe Jurecka
CSL Library by Brett Collings / Sean Galbraith
Voice Integration by Roger Wilco
Copyright 1997-2000 All Rights Reserved
Disable All SquawkBox Sounds
Build 5 for use with Microsoft Flight Simulator
Click Here to Get into the Action

After multiplayer connection, program initialisation requires little more than the press of a button

The ATC system in VATSIM is handled with a remarkable similarity to the real-world system and with similar attention to detail. Airspace is divided up into sectors, and each country has its own division managing sectors and departments. Airports have their various control facilities – Ground Control, Tower, Approach and Departure – and each division has its own training directors, manuals, supervisors and controllers. The supervisors and directors ensure smooth facility management and the integration of real-world procedures, in an effort to provide the highest quality ATC for the flight simulator pilot.

Once connected, those controlling the different ATC positions will often stay connected for hours on end, sometimes reaching double figures during fly-ins and international events. The standard of controlling is generally superb, and many VATSIM divisions have an excellent online reputation.

Many strong friendships have formed between pilots and controllers, and dedicated VATSIM pilot groups have even been set up. Controllers and

'veteran' pilots are always glad to provide a helping hand to those who are just starting up or find themselves in a bit of a dilemma. Don't feel reluctant to get involved – the friendly nature of this particular community is a significant factor in the popularity of the network.

Pre-flight checks

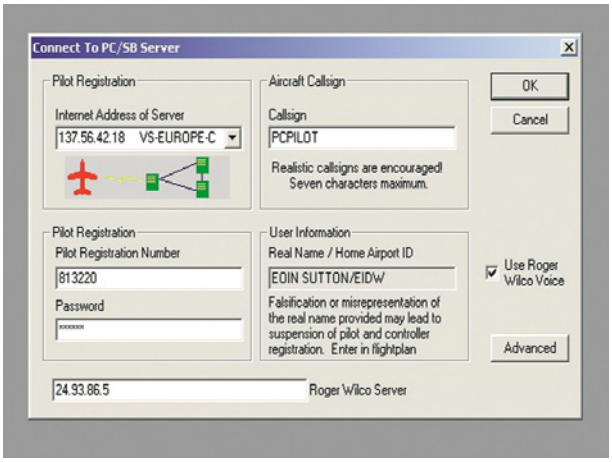
To get involved with VATSIM, you must first of all register to join the online action. Their website provides lots of useful introductory information about the code of conduct and the general rules, which you should look over before signing up. Registration is free and only takes a few minutes.

One item of software required for all pilots is a program called SquawkBox. This is the pilot client which connects to the VATSIM servers in conjunction with ProController, the ATC client, which allows ATC to see the position of your aircraft on their radar screen and many other essential pieces of information. SquawkBox can be downloaded free of charge for use with flight simulators ranging from FS98 to Aerowinx's 744 PS1.3a. Once installed, connection is rarely a problem, but in FS2002 it's necessary to have some extra programs running in the background to facilitate connection. Once up and running, though, it really is a breeze. This is just as well, because all your attention is going to be required for the VATSIM procedures.

Voice communication undoubtedly adds to the realism of any flight, and can easily be achieved by simply using a microphone attached to your computer and software which allows you to connect to an IP address. A program by the name of Roger Wilco is the preferred choice for VATSIM; it's a shareware download, but once you have it there is no need to worry about adjusting it for different addresses. Squawkbox does this automatically for you as soon as you tune to an ATC frequency. Once you download it, be sure to set it to 'Push-to-talk' mode and not 'Voice Activation' mode – this has been the cause of many a frustrating incident for both controllers and pilots!

The online flying experience

"Ladies and gentlemen, welcome aboard PC Pilot Flight 001. Today we'll be travelling through the VATSIM network, at an altitude of 28,000 feet, demonstrating its capabilities for providing both realism and enjoyment. While showing you the ropes, we'll guide you step-by-step through a sample flight in this superb and completely free association of aviation enthusiasts. Please sit back, relax, and enjoy the flight. Tea and coffee will be served throughout, on behalf of PC Pilot."



Take to the skies! A simple, final connection dialogue is your ticket to VATSIM

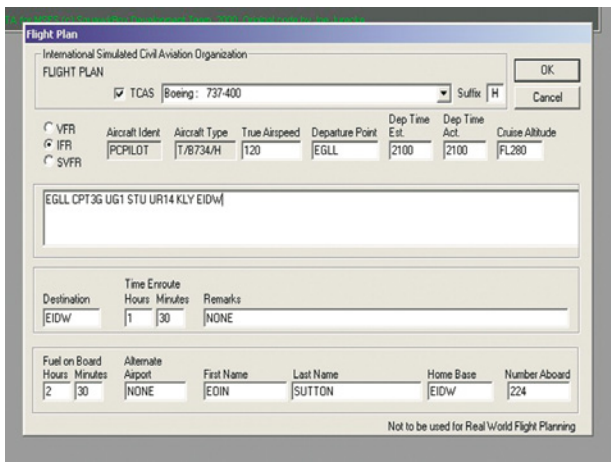
We'll demonstrate, through a basic sample flight from London's Heathrow airport to Dublin, the range of departments with which you will come into contact, and the type of language you can expect – in aviation terms, of course!

First things first – a connection must be made (see the 'Get connected' boxout). Once established, you must file a flight plan on SquawkBox, so that ATC can see the details of your flight. Right click on SquawkBox's dark grey area (where you can text ATC and receive text), highlight ATC Functions and click File Flight Plan.

There is a lot of information to provide, but we'll just fill in what is necessary. At the top, we choose our aircraft from the dropdown list (in this case a Boeing 737-400). On the left, we click the circle which says IFR, so we will be recognised as an IFR target. Just over from that we should enter our departure airport (using the international codes) – EGLL in this case for Heathrow. Enter also our cruising flight level (FL) as FL280 (28,000ft.).

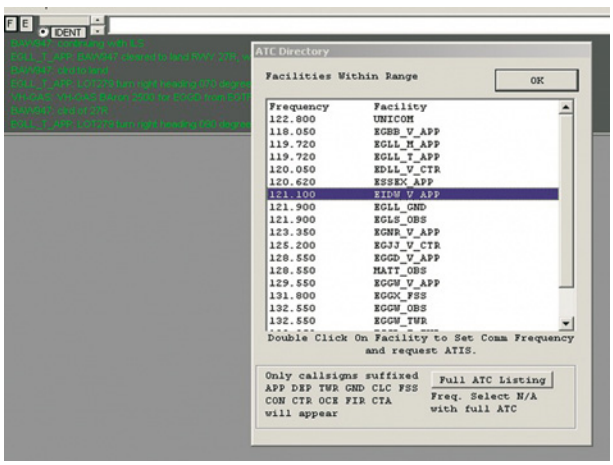
Below this top list is an area where we can enter our flight plan information. For this flight we have entered a simple plan, consisting of high-altitude airways and a SID (Standard Instrument Departure) departing Heathrow; the full flight plan is EGLL CPT3G UG1 STU UR14 KLY EIDW. Directly underneath this is where we enter our destination (in this case EIDW for Dublin) and any remarks or comments for ATC to see. Finally, it is mandatory to enter the pilot's full name and home base in the fields provided, so VATSIM knows our identity.

As soon as the flight plan is filed, a check of the ATC Directory from the right-click menu shows Clearance Delivery on 121.87.



Take care when filing this critical flight information!

Double-clicking this tunes us in. A final pre-flight check, making sure we have our charts, correct fuel and weather reports, is completed before we begin our flight. The exchanges below were typed into SquawkBox, although voice is now the most popular method of communication.



Choose the closest ATC to you when beginning your flight

On the ground, at Heathrow…

[PCPILOT 001] Good day, Sir, PCPILOT 001 with you stand Lima 33, requesting IFR clearance to Dublin please

[Clearance] PCPILOT 001 good afternoon. I have your flight plan, stand by

[PCPILOT 001] Standing by

[Clearance] PCPILOT 001, you are cleared to Dublin airport as filed, Compton Three Golf departure, climb initially to flight level 60, squawk 4305

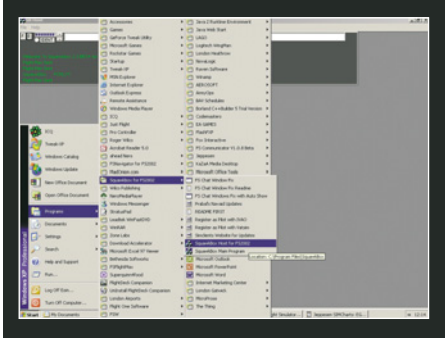
Get connected

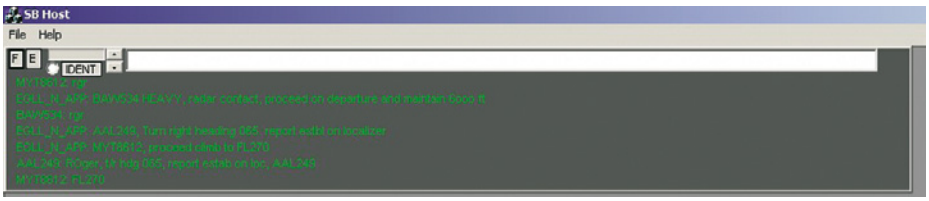
SquawkBox can initially be a little confusing, especially when used with FS2002. It's simple, though, when you know what to do. Firstly, load FS2002 at the stand of your choice at your departure airport, then load the SquawkBox host program, which will run in the background. Secondly, so that you can see and be seen by other aircraft, open the Multiplayer connect menu in FS2002. Type in your call sign, make sure TCP/IP is selected, and click Host. On the next page, click OK. Now run the SquawkBox main program and you'll be presented with a multiplayer connect menu. Make sure 'Internet TCP/IP Connection for Direct Play' is selected, and click OK. You should see your multiplayer session in the next screen. Simply click Join. The next SquawkBox opening screen only requires you to click the large button on the bottom to start the program.

Once the program is open, right click on the dark grey area (this shows you the main menu) and select Connect. There is a built-in list of IP addresses to select, but VATSIM-UK seems to be missing, so type in 212.19.195.26 in the top left box. You also need to enter your registration number and password below, and your call sign to the right. Click OK and away you go.

SquawkBox also allows you to send private messages to friends online, whether they are ATCOs or pilots. Simply type '.msg [space][callsign] your message' (without the quotation marks or words in the square brackets). It also provides a built-in TCAS (Traffic Alert & Collision Avoidance System) for watching the movements of online aircraft, and a flight management system into which you can program your flight if you wish. It does take a while to get used to this program, but it's invaluable.

- Go to www.vatsim.net and register
- Download and install SquawkBox
- Connect, using our guide
- Tune in an ATC frequency by selecting the ATC Directory on the SquawkBox right-click menu
- Observe for a while, and get used to what's going on
- Plan a simple, short, IFR flight
- If in doubt, don't be afraid to ask a controller
- Practise!





You couldn't ask for a simpler interface

[PCPILOT 001] Roger, cleared to Dublin as filed, Compton Three Golf, maintain flight level 60 initially and 4305 on the box

[Clearance] Read back is correct, Sir. Contact ground 121.90 for push and start, 'bye now

[PCPILOT 001] Roger 121.90 for push and start, thanks

This is the basic first-time clearance, but there is not always a Clearance Delivery available; in such instances Ground Control will issue IFR clearances.

[PCPILOT 001] Ground, good afternoon, PCPILOT 001 with you stand Lima 33 requesting push and start

[Ground] PCPILOT 001, good afternoon, read you five by five, pushback and start-up approved, call for taxi

[PCPILOT 001] Push and start approved, call for taxi, thank you

[PCPILOT 001] Ground, PCPILOT 001 now ready for taxi

[Ground] PCPILOT 001, taxi via the outers to holding block 75, runway 27 left

[PCPILOT 001] OK, taxi via the outers to holding block 75 for runway 27 left, PCPILOT 001

You may have noticed in these exchanges that it is essential to read back all instructions received. This is to ensure that everyone knows what he or she is to do, in order to assist the smooth running of the traffic flow and, most importantly, for safety reasons. When we are holding short, Ground tells us to contact the tower on 118.50. At this point, we complete the final cockpit checks in preparation for take-off. Because this is Heathrow, there are many other people waiting for departure in front of us, so it usually takes a while to get rolling.

[PCPILOT 001] Tower, PCPILOT 001 with you holding block 75

[Tower] PCPILOT 001 roger, line up runway 27 left behind the departing British Airways 747 and hold

[PCPILOT 001] Wilco 001 [Wilco meaning "OK. I understand and will comply."]

Shortly after…

[Tower] PCPILOT 001 cleared for take-off runway 27 left, winds 270 at 8 knots – caution wake turbulence, a heavy just rotated

[PCPILOT 001] Roger cleared for take-off runway 27 left, copy the winds, PCPILOT 001

Notice that the tower controller is giving a caution to us. Wake turbulence has been caused by the massive size of the 747 rumbling down the runway at high speed. This effect is not actually simulated, but everybody does their best to keep the experience as realistic as possible.

After take-off we are handed off to London's TMA (Terminal Control Area) controller.

[PCPILOT 001] London, PCPILOT 001 is with you climbing through three thousand feet for flight level six zero, Compton Three Golf departure

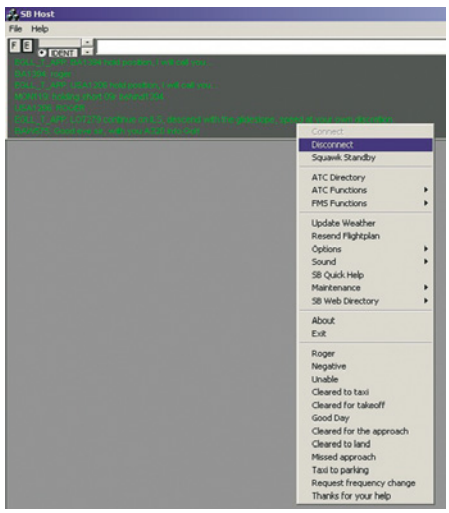
[London] PCPILOT 001 good afternoon, radar identified, climb flight level 280, no speed restriction

[PCPILOT 001] Climb flight level 280, free speed, PCPILOT 001

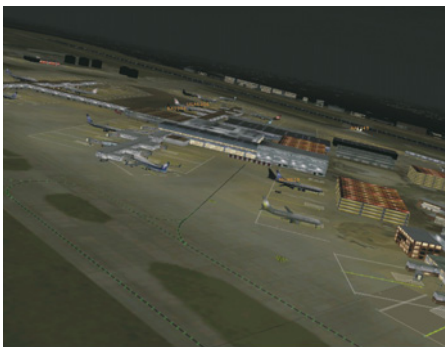
Throughout the climb and cruise we see many other pilots speaking to controllers, adding a very realistic feel to the flight. During our time en route, we are handed from centre to centre, each one controlling their own airspace sectors, until we eventually end up entering Irish airspace and contacting Shannon Control. At this point we are descending into Dublin.

[PCPILOT 001] Shannon, good day, PCPILOT 001 with you descending through flight level 150 for eight zero

[Shannon] PCPILOT 001 radar contact, descend to flight level six zero, continue present heading, expect ILS approach for runway 28 in Dublin



The right-click menu holds all the options you'll need



Parking space is always at a premium!

[PCPILOT 001] Descend to flight level six zero, continue present heading, expect ILS runway 28, PCPILOT 001

At this point, we prepare for our approach and make the initial preparations for landing. We are then handed off to Approach control.

[PCPILOT 001] Approach good afternoon, PCPILOT 001 with you flight level six zero heading 290

[Approach] PCPILOT 001, identified on handover, turn right heading 310, descend to two thousand five hundred feet, QNH1013, cleared for the ILS approach runway 28, call established

[PCPILOT 001] Turn right heading 310, descend to two thousand five hundred on the QNH of 1013 [the QNH is the local barometric pressure setting]***, call established on the ILS, PCPILOT 001***

Once established, we let approach know.

[PCPILOT 001] Approach, PCPILOT 001 established on the ILS runway 28

[Approach] Roger thank you, cleared for the approach, contact Tower on 118.60, cheerio

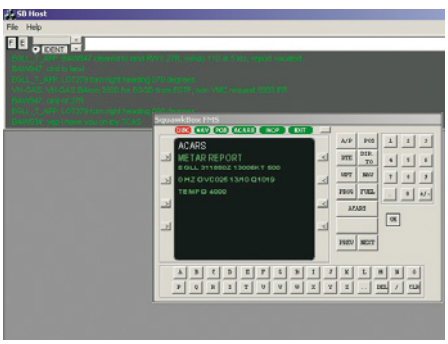
[PCPILOT 001] Tower on 118.60, 'bye now

Tower will give us landing permission and monitor our path to and from the active runway.

[PCPILOT 001] Tower, PCPILOT 001 with you, four miles out on the ILS runway 28

[Tower] PCPILOT 001, cleared to land runway 28 winds calm, call clear

[PCPILOT 001] Cleared to land, thank you



The SquawkBox FMS is an invaluable tool en route

Essential resources

VATSIM: www.vatsim.net

VATSIM-UK: www.vatsim-uk.net

VATSIM Resources: http://benaway.mystarband.net/vatsim/vatservers.htm
A useful site showing details of server activity and which pilots and controllers are currently online, links to VATSIM divisions, weather maps, charts, tools and more.

VATSIM Flight Plan Management: www.vatsim.net/fp
A recently opened website whereby VATSIM pilots can file a flight plan prior to connecting to the network, or look up other flight plans.

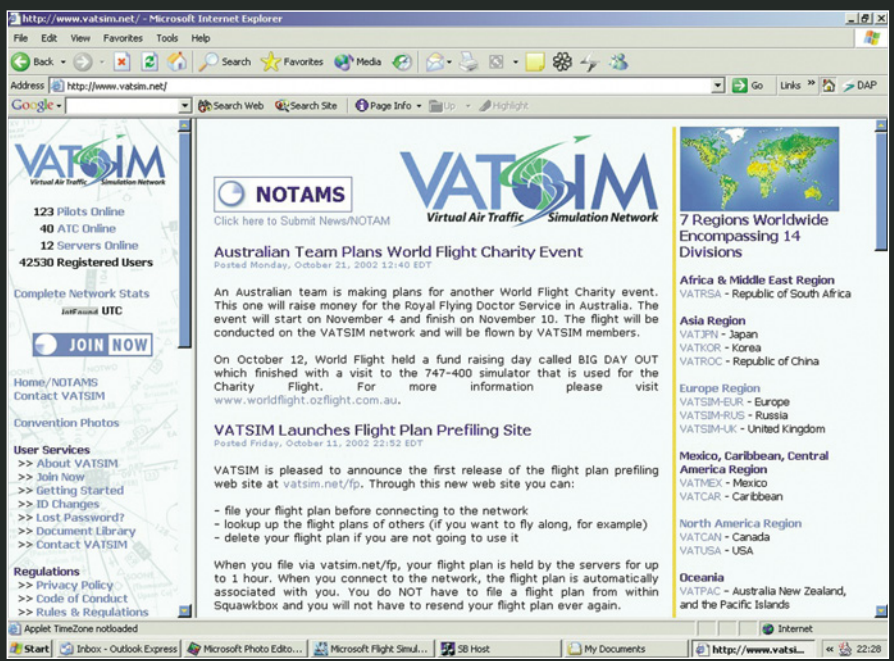
SquawkBox: www.squawkbox.ca

Roger Wilco: http://rogerwilco.gamespy.com

SimClients.com: www.simclients.com
The Virtual Aviation Software Development Group's website, providing information and assistance for users of real-time ATC systems – both pilots and controllers. Particularly helpful if you're having technical problems or wish to give feedback to the developers.

ServInfo: http://avsim.com/hangar/utils/servinfo/home.htm
A freeware utility providing information on online activity on VATSIM and similar networks – call signs and names of controllers and pilots, flight status and information, controller's ATIS (Automatic Terminal Information Service), response times for network servers and so on.

Whazzup: http://www.schiratti.com/whazzup.html
Nothing to do with annoying beer advertising campaigns, but a superb tool for pilots and controllers from Enrico Schiratti of Project Magenta fame. Essentially a pre-flight tool with a graphic representation of pilots' and controllers' lists, incorporating flight plans and a fully zoomable world map.


http://www.vatsim.net/ - Microsoft Internet Explorer
VATSIM
123 Pilots Online
40 ATC Online
12 Servers Online
42530 Registered Users
Complete Network Stats
JOIN NOW
Home/NOTAMS
Contact VATSIM
Convention Photos
User Services
>> About VATSIM
>> Join Now
>> Getting Started
>> ID Changes
>> Lost Password?
>> Document Library
>> Contact VATSIM
Regulations
>> Privacy Policy
>> Code of Conduct
>> Rules & Regulations
NOTAMS
Click here to Submit News/NOTAM
VATSIM Virtual Air Traffic Simulation Network
Australian Team Plans World Flight Charity Event
An Australian team is making plans for another World Flight Charity event. This one will raise money for the Royal Flying Doctor Service in Australia. The event will start on November 4 and finish on November 10. The flight will be conducted on the VATSIM network and will be flown by VATSIM members.
On October 12, World Flight held a fund raising day called BIG DAY OUT which finished with a visit to the 747-400 simulator that is used for the Charity Flight. For more information please visit www.worldflight.ozflight.com.au.
VATSIM Launches Flight Plan Prefiling Site
VATSIM is pleased to announce the first release of the flight plan prefiling web site at vatsim.net/fp. Through this new web site you can:
- file your flight plan before connecting to the network
- lookup up the flight plans of others (if you want to fly along, for example)
- delete your flight plan if you are not going to use it
When you file via vatsim.net/fp, your flight plan is held by the servers for up to 1 hour. When you connect to the network, the flight plan is automatically associated with you. You do NOT have to file a flight plan from within Squawkbox and you will not have to resend your flight plan ever again.
7 Regions Worldwide Encompassing 14 Divisions
Africa & Middle East Region
VATRSA - Republic of South Africa
Asia Region
VATJPN - Japan
VATKOR - Korea
VATROC - Republic of China
Europe Region
VATSIM-EUR - Europe
VATSIM-RUS - Russia
VATSIM-UK - United Kingdom
Mexico, Caribbean, Central America Region
VATMEX - Mexico
VATCAR - Caribbean
North America Region
VATCAN - Canada
VATUSA - USA
Oceania
VATPAC - Australia New Zealand, and the Pacific Islands

As soon as we are clear of the active runway, we are told to call Ground.

[PCPILOT 001] Clear of the active, 001

[Tower] Roger thank you, Sir, contact the ground on 121.80, 'bye

[PCPILOT 001] Ground on 121.80, cheers now

[PCPILOT 001] Ground, PCPILOT 001 with you, Bravo five taxiway

[Ground] PCPILOT 001 taxi via Link two and the Foxtrots to stand 35, call for shutdown

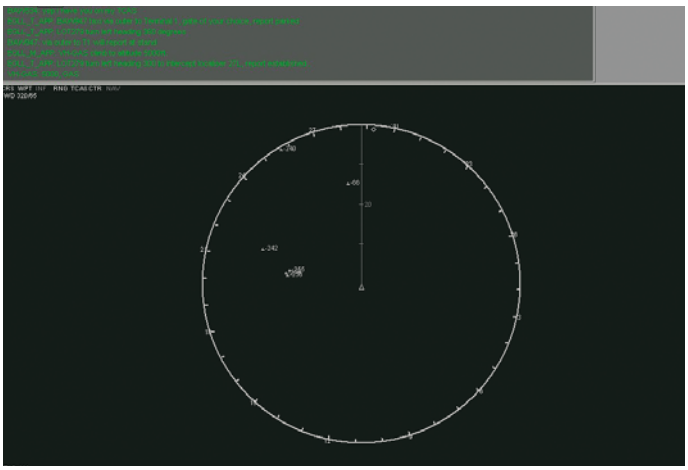
[PCPILOT 001] Taxi via Link two and the Foxes to stand 35, will call for shutdown, PCPILOT 001

We are about to end the flight, but we must let ATC know too.

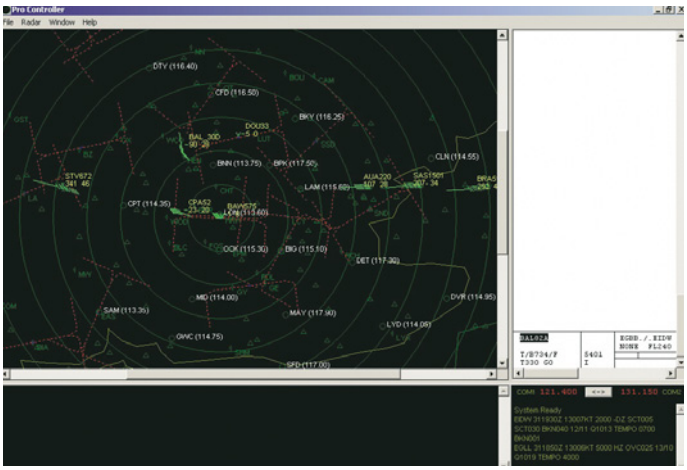
[PCPILOT 001] Ground, PCPILOT 001 on stand requesting shutdown

[Ground] PCPILOT 001 shutdown approved, flight plan closed at thirteen fifty, thanks for flying with us Sir, come back soon, good day

[PCPILOT 001] Shutdown approved, thanks for your help, all the best now, PCPILOT 001



Watch for traffic! When visual cues are unavailable, switch to TCAS



A controller's job can get a little tense at times

GA aircraft are also catered for on VATSIM

This sample flight was a very basic one, which should give you an idea of the procedures you will need to follow. There is, of course, much more to discover in VATSIM, and numerous people fly exclusively online just so they can experience the realism of flying with real people and real procedures.

Our flight was made on a busy Sunday evening with VATSIM-UK, but not everywhere has ATC services on every day of the week. Weekends are certainly the best time to go flying online, especially Saturday and Sunday nights, when European airspace comes alive with hundreds of pilots and controllers. Flying online with some friends is a great way to spend a Sunday evening. Don't be daunted if you feel you can't handle everything that is going on – most pilots have felt that way when starting out. Believe us when we say you'll get used to it.

After you have experienced your first flight with VATSIM, it's highly likely that you'll want to return for some more. Every flight simmer should participate in this service, even if it's just once. It may not be for everyone, but you owe it to yourself to try it.

Eoin Sutton

If you've enjoyed the taster of the eight Combat Aces aircraft on our cover CD you might be wondering what else is in this five-star expansion for CFS2. With 20 different aircraft modelled to the highest detail, Combat Aces lets you fly for either the Allies or the Central Powers and dogfight over the trenches. The package includes accurately re-created airfields, seasonal scenery and 70 different missions that span five unique campaigns. Now you can join the aces and experience the most exciting period in the history of air warfare.

We've got a limited number of copies available at the giveaway price of just £7.99 (UK), €12.99 (Euro Zone) or $11.99 (USA & ROW). You can get your hands on one of the most popular add-ons for CFS2 in the following ways:

Follow the Reader Offers link on our website, www.pcpilot.net.

Pay by credit card on our telephone hotline. Simply call 0870 900 0422 (local rate) or +44 870 900 0422 from overseas.

Post a cheque made payable to PC Pilot Ltd. or an International Money Order. Use the coupon, a photocopy, or just write out all the details and we'll do the rest!

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E-mail Address .....

Please send me a copy of Combat Aces, the ultimate WW1 expansion for CFS2, at the distinctly 1914-1918 price of £7.99 (UK), €12.99 (Euro Zone) or $11.99 (USA & ROW), while stocks last. **All prices include postage**.

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Card No. _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ Expiry date _ _ _ _

Switch Card Issue No. _ Switch Card valid from date _ _ _ _

Signature_____ Date_____

Return this form together with your remittance to:

PC Pilot Combat Aces, PO Box 11, St. Ives, PE27 3GW, United Kingdom

Airport 2002

VOLUME 1

State-of-the-art FSNAT technology brings you the ultimate in airport animation for Flight Simulator 2002

The Airport series is recognised by flight simmers as the ultimate in terminal titillation for the Flight Simulator series and now the latest instalment has been produced using Wilco's acclaimed FSNAT technology. Devilish detail and fiendish frame rates come together in a brilliant airport expansion that even allows you to create your own animations.

▲ *Pilot the 737-400 from a new 3D perspective*

▲ *Take a walk on the aisle side!*

SEVEN OF THE WORLD'S BUSIEST AIRPORTS

- *London Heathrow*
- *Paris Charles de Gaulle*
- *Munich International*
- *Los Angeles International*
- *Chicago O'Hare*
- *Dallas Fort Worth*
- *Atlanta Hartsfield*

A COMPLETELY NEW 737-400 IN ALL THREE DIMENSIONS!

Developed exclusively for Flight Simulator 2002 by Wilco, this amazing 737-400 boasts authentic instrument panels, a feature-packed Flight Management Computer and a full 3D environment and active panel. No more 2D panels – you can fly using the virtual cockpit while panning and zooming your views around in real time.

▲ *Dynamic aircraft and ground vehicles, including catering, fuel and maintenance*

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www.wilcopub.com

Concorde

The epitome of grace and beauty

PJD Software's Concorde Experience – versions are available for FS98, 2000 and 2002

If you're reading this article then it's a fair assumption that you have an affinity for aircraft, which is undeniably a passion shared by many others around the world. But there's one aircraft which is guaranteed to instil a sense of pride, combined with the involuntary movement of hair on the back of your neck, whenever she makes an appearance. We are, of course, referring to what many consider to be the most beautiful aircraft every built – Concorde.

As you probably know, Concorde was a child of the 1960s, entered commercial service in 1976 and, following a tragic accident in July 2000, was given a clean bill of health after modifications to the fuel tanks in November 2001. It's hoped that with economic use of the now ageing airframe she could still grace the skies for another twenty-five years. This can only be regarded as excellent news, because Concorde is the only supersonic passenger aircraft currently in service and, as far as we know, there are no plans to build another one. Consequently Concorde remains a superb testament to the skills of the designers and engineers who built her.

We want Concorde!

We regularly receive a large number of letters and e-mails about Concorde, most of them questioning the model's disappearance from FS2002, which commercial or freeware examples are currently available, and whether it's possible to import the FS2000 version into FS2002.

There doesn't seem to be any obvious reason for dropping Concorde from FS2002; in fact the enormous popularity of the aircraft makes such a decision rather surprising. We can only assume licensing problems to be the cause, or that Microsoft could not reach an agreement with BA over using the livery – a situation that seems to be common among virtual airlines recently, as many frustrated VA staff will be able to tell you. You'd think that airlines would be only too happy for an independent and enthusiastic group of volunteers to promote their name and company image…

We had a scout around the Internet for aircraft and other Concorde-related files, and were pleased to find quite a selection. The first aircraft we looked at was the demo version of a commercial product (£9.95) from PJD Software's Concorde Experience. It contains a British Airways-liveried Concorde, G-BOAC, with some animated moving parts (landing gear and nose section). The instrument panel, which is realistic although looking somewhat dated, incorporates a fully functioning INS (Inertial Navigation System), but sadly the model itself is visually uninteresting and lacks any of the refinements we've come to expect from a commercial product. The flight model, on the other hand, appears to be accurate, which makes it a fairly stable aircraft in comparison with some we've seen, and versions are available for both FS98 and 2000 as well as FS2002.

The Concorde distributed by Abacus as part of its Premier Collection is available to download as a try-before-you-buy product from the Abacus website. This is a useful facility, and particularly so in this case because there are many aircraft of equal or better quality available for nothing elsewhere on the Net. At $10.00 (£6.50 approx.) it's hardly expensive, but sadly this Concorde has the design elegance of a cardboard cut-out; it might have been acceptable two or three years ago but, as with PJD Software's offering above, it makes you wonder whether the publishers are aware of the quality of their competition.

Before considering purchasing either of these products, a good look around the freeware sites is sure to yield something of equal or superior quality which won't cost you anything.

Mario Coelho's freeware aircraft, for example, is a complete package based on an Air France model. It includes a customised panel, sound files and full cockpit views. Like many of the Concordes available on the Internet, this variant was derived from the FS2000 version (and requires the Concorde 2000 gauge in order to work). At 12.5Mb it's quite a sizeable download, but well worth it because Mario has done all the work for you; more importantly, it's free and it works just fine.

Alternatively, try a superb freeware example by that well-known designer John J. Schumacher. It's based on a fictitious aircraft sporting the WestWind virtual airline livery, and what sets this model apart from the others is a reworked FDE file that gives the aircraft a particularly realistic flight model – accepting, of course, that none of the PC Pilot team has ever flown Concorde (there aren't many that have, for that matter).

Concorde by Mario Coelho – now that's more like it

The panel features a visor, head-up taxi view, and an engineer's panel.

The DIY option

Concorde is clearly a popular subject for the freeware community but, if you've upgraded from FS2000 to the latest version of Flight Simulator, you may already have a reasonable model that simply needs a bit of tweaking to get it flying in FS2002. Just dig out your copy of FS2000 and either install it into an easily identifiable directory, or do as we did and extract the necessary .CAB files from the CD.

If you take the first option then you'll end up with a complete installed version of FS2000, which will include the Concorde aircraft, located in the Aircraft folder inside

The Abacus version – modelling doesn't suggest Premier Collection

Justin Hoeg's version

Fly WestWind!
They've got an impressive
Concorde in their hangar

the main FS2000 directory. You need to copy the complete Concorde directory into the Aircraft directory of your FS2002 installation. In this case it should be put at: C:\Program Files\Microsoft Games\FS2002\aircraft\concorde\xxx. Please note that this Concorde directory shown here doesn't already exist in the default FS2002 installation – it's the one you copy from your FS2000 installation.

Inside the Concorde directory you'll find four other directories, named Model, Panel, Sound and Texture, as well as a few other files. It's one of these additional files – the one called aircraft.cfg – that you need to edit in order to get the aircraft flying in FS2002 (Figure 1). As this is a simple text file, you can use Windows Notepad to do the editing, but before you do so there's one other file that you need to copy from the FS2000 installation, and that's CONCORDE.gau. You'll find this in the Gauges directory, located in the root FS2000 directory (Figure 2). Copy this file into the Gauges directory of your FS2002 installation; the default location for this is

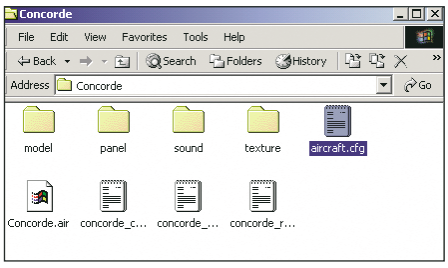


Figure 1. Find the aircraft .cfg file here

C:\Program Files\Microsoft Games\FS2002\Gauges. In case you haven't guessed, this single file contains all the gauges for the Concorde panel.

Aircraft editing

Once you've transferred the file, you should have a document that looks like Figure 3, but until you add a few more lines the aircraft will not appear in the aircraft selection dialogue in FS2002. The lines we're interested in are highlighted in Figure 4, and they concern the ATC and UI sections. As you can see, we've added a few lines that are largely self-explanatory:

atc_airline=British Airways
(This defines the airline)

atc_flight_number=155
(Flight number used by ATC)

atc_heavy=1
(Category of aircraft)

ui_manufacturer=British Aerospace
(Aircraft manufacturer)

ui_type=002
(Model or type of aircraft)

ui_variation=Fly the Flag Livery
(The livery for this aircraft)

Naturally you don't have to use the same information that we did. If you fancy an Air New Zealand definition, it will make no difference to the appearance of the actual

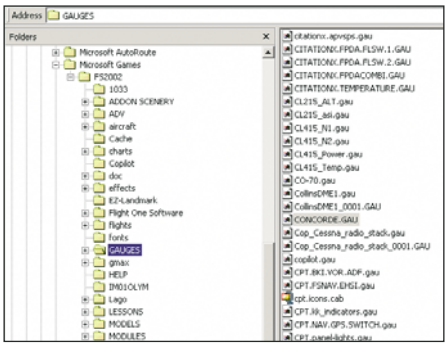


Figure 2. The all-important FS2000 gauge file

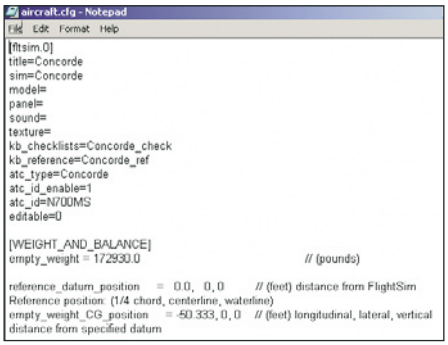


Figure 3. A little text editing is all that's required

aircraft, but it will say Air New Zealand in the Aircraft menu. Once these changes are made, you should see your new Concorde in the aircraft selection menu once you launch FS2002 (Figure 5).

If you prefer the quick and dirty method of installation, you'll need CD1 from your FS2000 set and an installed copy of WinZip. (You can find this on our cover CD or from www.winzip.com). The Concorde files are in GAME2.CAB (which is actually a Zip file) and are easy to identify because they are clearly labelled within a proper directory structure (Figure 6). You simply open WinZip, load the GAME2.CAB file, then highlight all the Concorde files. Hit the Extract button, making sure that the 'Use Folders' option is checked in the WinZip options. Bizarrely, the Concorde gauge is not in this file but in GAME.CAB. If you follow the same procedure, however, you should have no trouble extracting it. After you've installed the files in FS2002, as described earlier, you'll still have to edit the

A little tinkering will have the FS2000 Concorde flying happily in FS2002

Figure 4. Simply add these lines

aircraft.cfg, but this method does save quite a bit of time.

If you don't fancy either of these methods, it might pay you to download Justin Hoeg's Concorde, because it appears to contain the complete FS2000 Concorde together with four other liveries – Air Canada, Canadian Airlines, Air Transat, and the default British Airways livery, all painted by the author.

The aircraft.cfg files have already been edited, so it's simply a matter of installing from the Zip file, although you will have to create a few new directories.

A variety of sound enhancements and replacement panels are available from AVSIM and other freeware download websites, if you wish to enhance your Concorde experience. Once you've got the aircraft installed, try some of the many flights/adventures available to download from the same sources. If you need a little tuition, try Dan Hart's tutorial on flying Concorde at FSFreeware.com, www.fsfreeware.com/dcd/Tutorials/index-4.html.

As a final appetiser, particularly in view of some of the commercial models we looked at, we understand that those purveyors of aircraft excellence, Phoenix Software Simulations, are already on the case with an all-new Concorde for FS2002, due to be released early in 2003. They tell us that the flight dynamics will be the most accurate rendition of supersonic transport possible within the constraints of FS2002, and will of course be fully tested and verified by qualified Concorde crew. Keep an eye on www.phoenix-simulation.co.uk for news. ■

Joe Lavery

Figure 5. Concorde will now appear in your aircraft selection

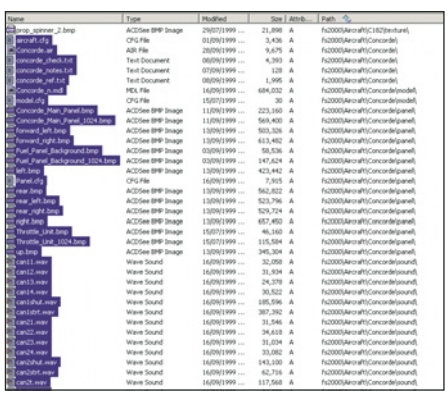


Figure 6. Be sure to copy over ALL the Concorde files

Supersonic surfing

GENERAL

A couple of excellent sites for Concorde references and links

Concorde
www.concordesst.com

Concorde-Jet.com
www.concorde-jet.com/index.php

PAYWARE AIRCRAFT

Abacus
www.flightsimdownloads.com

PJD Software
www.pjdsoftware.co.uk/concorde.htm

FREEWARE AIRCRAFT

Mario Coelho's Air France Concorde
http://rbftp.org/flyaway/html

WestWind VA Aerospatiale/BAC Concorde
http://flywestwind.com/Hangar/Jets/fs2002/concorde_2k2.htm

Justin Hoeg's Concorde
www.flightxpress.de/files/1201/files1201.html

Forced Landings

Would you survive if your only engine stopped?

Modern aircraft are incredibly reliable machines; the typical piston engine on a general-aviation aircraft will run for 2,400 hours between rebuilds without missing a single beat. Despite the fact that there are many other more serious faults that can occur – such as a snapped elevator control cable – engine failure is the emergency that pilots worry about most...

This is not without good reason, as several engine failures occur every year. It's not that the engines themselves are particularly unreliable, as in most cases the system that fails is the pilot's brain. The very occasional mechanical fault does happen, but far more engine failures are the result of either carburettor icing or fuel starvation, which are caused by pilot error or misjudgement.

Pilot training does include a significant amount of instruction on 'practice forced landings', and there is a positive side to the fact that the pilot is a major cause of engine failures. It means that if the pilot can work out what he or she has done wrong, then there is a chance that the error can be corrected and the forced landing avoided. Unless the engine can be restarted, the pilot must pick the most suitable place to land within the aircraft's gliding range, and 'dead stick' the plane down to a safe landing.

When it all goes quiet

An aeronautical engine is likely to give up the ghost in one of three ways. There may be a loud bang followed by an immediate loss of power. This is usually accompanied by other unmistakable symptoms such as horrible noises caused by the remaining parts getting mangled in the still turning engine, oil appearing on the cowling and windscreen, or the propeller stopping dead. When this happens, it's immediately obvious that there is no chance of restarting the engine. The second type of failure is when the engine starts to cough and splutter; it 'misses' an increasing number of times, losing and regaining power. This normally signifies fuel starvation and, unless the cause can be quickly rectified, total loss of power will soon follow. The remaining type of failure occurs when there is a slow and unnoticeable reduction in the power generated by the engine, possibly combined with the engine failing to respond to the throttle lever. This last type of malfunction may only be spotted when it is too late to do anything about it.

Whatever the cause, the pilot will at some stage recognise that a problem exists. Unless the pilot has experienced it before, or the plane is a 'veteran' that is known to be unreliable, the initial reaction to anything but a gradual failure is likely to be shock, disbelief and denial. This instinctive emotion is quickly controlled, and the pilot starts the well-practised emergency procedures. It is at this stage that you realise that height in an aircraft means safety. 'Sky above you' is often quoted as a useless commodity in an engine failure situation, together with 'fuel in the bowser'. The higher you are, the more time you have to investigate and solve a problem, and the further you can glide to reach a good landing site.

Immediate actions

Once the initial panic is over, the pilot needs to take a few immediate actions. Firstly, if you are climbing when the engine fails, you will need to

Quickly establish a trimmed glide when the engine fails

lower the nose pretty quickly until you are in a slight descent. If you don't, your airspeed will rapidly decline and there is a high chance that the aircraft will stall.

Then the carburettor heat or alternate air should be turned on. If the cause of the problem is carburettor ice, then you must get rid of it before the exhaust pipe (which provides the heat) cools down. If you try to diagnose the problem first, by the time you work it out (if you ever do) there will be no heat left to melt the ice. Even if ice is not the problem, the carburettor heat draws air into the engine by a different route, thus curing any blockage in the normal system.

Next, the fuel pump should be switched on; most petrol aero-engines will have their fuel delivered by an engine-driven mechanical fuel pump. Aircraft commonly have a back-up pump in case the normal fuel feed system stops working. It is usually switched on during take-off, landing, and when changing tanks, but switched off for the rest of the flight.

The final thing you need to do immediately is change tanks, either to the one not currently in use if you only have two, or to any tank containing fuel if you have the choice of several. On some aircraft the fuel can only be taken directly from a few of the tanks, and the fuel in the remaining ones can only be used if it is transferred to a feed tank first. The objective of changing tanks is to assume that there is a problem with the tank you are using, and therefore to feed the engine from another one.

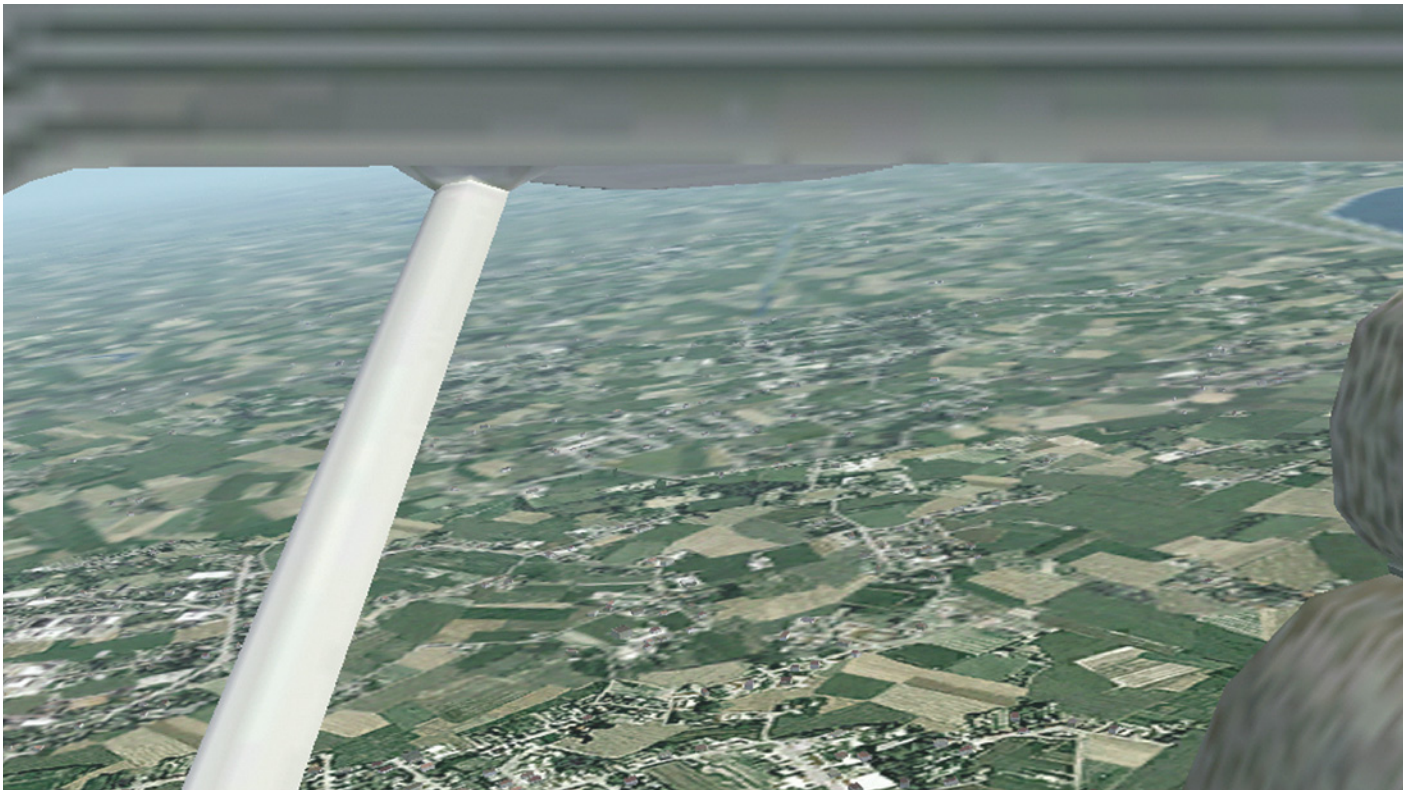
With the immediate actions quickly out of the way, the next step is to convert your excess speed into height. Unless you are climbing when the engine fails, you are likely to be flying well above the ideal gliding speed. A gentle pull up will trade your excess speed for height and may gain you a hundred feet or so of precious height. Ease forwards on the stick as you reach your best gliding speed, and now quickly trim for this glide configuration. Trimming is absolutely essential because you need to be able to forget about handling the plane while you carry out the next set of tasks. You will complete the following checks, and possibly cure the problem, far more effectively if you don't have to apply half of your concentration to keeping the aircraft under control.

Select your field

Flying the plane and following the right procedures is all very well, but if the engine does not start, you will have to land the aircraft somewhere. So, having got the initial actions out of the way, you had better decide where you intend to put the plane down. The best place is, of course, a runway or an airfield. Not only will there be a long flat strip of ground designed for aircraft to land on, but there will also be people monitoring your progress, and emergency services just in case you don't quite touch down as planned. If you are cruising at many thousand feet, look at your map and see if there is an airport that may be within gliding range, or flying range if your engine is still at the cough-and-splutter stage.

On the other hand, if you are at a low altitude, looking all around is likely to be the best bet. If there are no runways handy, you should look for the best field you can spot. Although you may think roads would be good places to land, they are rarely straight for any useful distance, are not very wide, have obstructions such as lampposts and bridges, are difficult to see clearly until you are about to land, and tend to have a variety of traffic on them. If you were flying somewhere outside the UK where the roads are dead straight, clear of obstacles, and are almost free of traffic, roads may be an option. If you were to try and land on a road but at 500 feet suddenly found it unusable, you could not easily swap to another road.

You will normally find that a large flat field is the best option. Ideally, you want to pick a field that has other equally large fields around it, so that if you misjudge your approach, or don't like the look of it when you get closer, you can easily divert to one of the others. FS2002 has trees and houses for you to watch out for, and no doubt as simulators become more sophisticated they will include hedges, ditches and power lines too. Your objective is to find a large field



There is an overwhelming choice of fields that all look too small

that contains no obstructions or inconveniently placed ponds, and which has good alternative fields around it. This is easier said than done.

Beware the common mistake of selecting a field that is too close to your current position. The distance you can glide will depend on your height above the ground, the wind, and the gliding characteristics of your plane. Some aircraft glide like the proverbial brick, and others seem to glide forever while barely losing any height at all. Only practice will let you know how your plane will behave, which is why checkrides invariably include a PFL (Practice Forced Landing).

If you cannot see anywhere at all to land, you have three possible courses of action. If you have enough height, you can turn downwind to glide as far as possible in the hope that you will find somewhere better. You can head in the general direction of better terrain, or even water, although many pilots would prefer a rough landing on terra firma to a stretch of deep water. A final option is to pick somewhere where the resultant crash will be the least severe. Rolling into things can usually be survived; this isn't likely to be the case if you fly into them. None of these options is particularly appealing, and consequently pilots will often choose longer routes just so that they can fly over land which is more favourable to a forced landing.

Remember that you should always land into wind because it reduces both your touchdown groundspeed and the distance you roll along the ground. As a pilot you should always know which direction the wind is from during your flight, so if your field is long and thin it must be long enough in the 'into wind' direction. Also, if the wind is very strong, the distance you can glide will be affected; if your chosen field is upwind, make sure you have enough height to reach it. As soon as you select your field, turn towards it; flying in any other direction is wasting valuable height. As already mentioned, height is your most valuable commodity at the moment. You are now heading towards your emergency landing field and about 15 to 30 seconds will have elapsed.

Check for cause of failure

If you can return your engine to normal smooth operation, your emergency will be over and you will avoid the dangers associated with a less than ideal arrival back on the ground. The best way to tackle this is by looking at all the relevant controls from left to right across the cockpit. This 'left to right' approach will work in all but the most sophisticated GA aircraft. If you are flying airliners, there should be a specific list of actions for the crew to carry out. When you do your left to right scan, you should include the following:

- **Fuel tank/system selector** – Make sure that it is feeding the engine from a tank which contains fuel. You need to try all fuel tanks. Be aware that fuel gauges frequently misread.
- **Magnetos** – This switch (or key) should already be in the 'both' position. If it is not, move it to this position. Your check should move it to the 'left', then the 'right', and finally back to the 'both' position. If the engine restarts in any of the positions, leave it there; otherwise leave it in the 'both' position.
- **Masters** – Check that both the battery and the alternator master switches are on. If they are not, the fuel pump is almost certainly not receiving any electrical power. Although the main fuel pump is likely to be mechanical, the back-up pump normally depends on electricity.
- **Fuel pump** – Make sure that the electrical fuel pump is switched on.
- **Primer** – Make sure that this is closed and locked. If the primer is open, some systems can allow too much fuel to pass directly from the fuel tanks to the engine, which will flood it and stop it.
- **Throttle** – Push it fully forwards. Throttles can sometimes move as a result of the vibration of the aircraft. Granted, this is unlikely, but it's still important to check that it hasn't just slipped back to the idle position.
- **Mixture** – Make sure that the mixture is set fully rich. If you are at a high altitude, it may need to be set appropriately lean, but you are normally better to set it too rich than too weak.
- **Carburettor heat** – This should already be set to hot from your initial actions.

If the propeller has stopped turning, you will need to press the starter button or turn the key. This is not likely to be necessary, as the propeller normally keeps turning until after you have landed, because it 'windmills' in the airflow.

If there is no apparent reason for the engine failure, you are now committed to the forced landing.

Inform the emergency services

If it is possible on your simulator, make a mayday call to the ATC who you are currently in radio contact with. This should ensure that someone knows to come and look for you quickly. A mayday call would be something like this: "Mayday, mayday, mayday, Gloucester Approach, Golf Bravo Sierra Mike Hotel, engine failure, landing in a field, four miles south-west of Hereford, out." This tells them that it is an emergency situation, who you are, what's wrong, where you are and, finally, that you haven't got time for a chat. "Out" means that you have finished your message and do not want any reply. If you wanted a reply you would say, "Over" (hence "Over and out" should not be used in aviation).

If you have a transponder, you should also squawk 7700 because you would then be automatically highlighted on most ATC radar screens; this would consequently increase the chances of you being found quickly. If you don't think ATC can hear you on your current frequency, you should transmit on 121.5 MHz, which is an international emergency frequency.

Planning the landing

There are several ways of planning your approach and landing, but the most common is to fly to a 'thousand-foot point' that is on a tight base-leg position to the field. As the name suggests, your objective is to arrive there at one thousand feet above your selected field. You need to be careful here, because this 1,000-foot altitude is not based on any altimeter pressure setting you have been given. Your altimeter should remain set to the QNH (to show the height above sea level), but you must either know the height of the terrain around you from a map, or use your judgement. Such judgement is not too difficult because you will normally be flying most of your circuits at 1,000 feet above the ground, and hence you should be familiar with what it looks like.

During your approach to the thousand-foot point you will need to prepare the aircraft for landing by shutting down as much as possible. This involves switching off the fuel and the electrical systems.

- **Throttle** – Fully closed
- **Mixture** – Idle cut off (fully weak)
- **Fuel** – Off
- **Electrical equipment** – Off (including radio)
- **Masters** – Off, unless you have electrically powered undercarriage or flaps

Shutting these down while you are still flying may seem strange, but your objective is to make a potentially rough landing as safe as possible. As soon as you have done this, carry out your pre-landing checks, but this time modify them for your emergency situation. The checks should include:

- **Brakes** – Off
- **Undercarriage** – Down (although if you are short of height, you may choose to leave this until later)
- **Mixture** – Off
- **Fuel** – Off

When you reach the thousand-foot point, lower the undercarriage if you have not done so already. Chances are that when you reach your thousand-foot point you will wish you were either higher or lower than you actually are. You are unlikely to be at exactly 1,000 feet above the field, for example, the wind may be stronger than you had expected, and so on. If you are too low, you can solve this by cutting the corner to the touchdown point, or you can land down the near side of the field. Conversely, if you are too high, you can delay your turn onto finals and land along the far edge of the field.

Generally it is better to be too high than too low – you can lose height in many ways but there is no practical way to regain it. Whatever you do, don't lose sight of the field by, for example, turning away from it. It can be unbelievably difficult to spot a particular field after just one gliding orbit. What's more, there's a good chance that you will get halfway round the orbit and then sorely regret starting it!

Final approach

Your turn from base leg onto finals should be gentle, with no more than 30 degrees of bank, and with the slip ball held firmly in the centre. You should aim to land using full flaps. The judgement required for lowering each successive stage of flaps should be based on waiting until you are absolutely certain that you can reach the field with it lowered. If you lower flaps too early, you cannot remedy the situation by raising them again; it just does not work, so make sure you delay until you need them.

Another way of approaching the problem is to wait until you are certain that you would overshoot your landing point if you did not lower a further stage of flaps. Apply the

Make sure you don't miss opportunities like this airfield

This is what your thousand-foot point should look like

same thought process for each stage as you lower it. When the final stage of flaps is lowered, and the undercarriage is down, turn off the master switches. You should be aiming to land about one quarter of the way into the field. Some instructors recommend aiming for halfway across the field during the early stages of the approach. As you get closer to touchdown, revise this closer to the near boundary of the field. You can lose the excess height by side-slipping (although many simulations struggle with this), lowering the nose to accelerate to the flap limiting speed, or by making some S-turns down the approach.

Pray that they haven't just ploughed this field

Your touchdown should be normal, but you should be particularly careful to hold the nose wheel off the ground for as long as possible, because it is relatively weak. It would still be a bad day if a successful forced landing was ruined by the plane flipping onto its back because the nose wheel detached. As soon as you stop, put the parking brake on. The field may not be as flat as it appeared from the air, and the plane is not safe until you prevent it from rolling away. If you were to perform a forced landing for real, you would also exit the aircraft as quickly as possible, in case of fire.

Engine failure after take-off

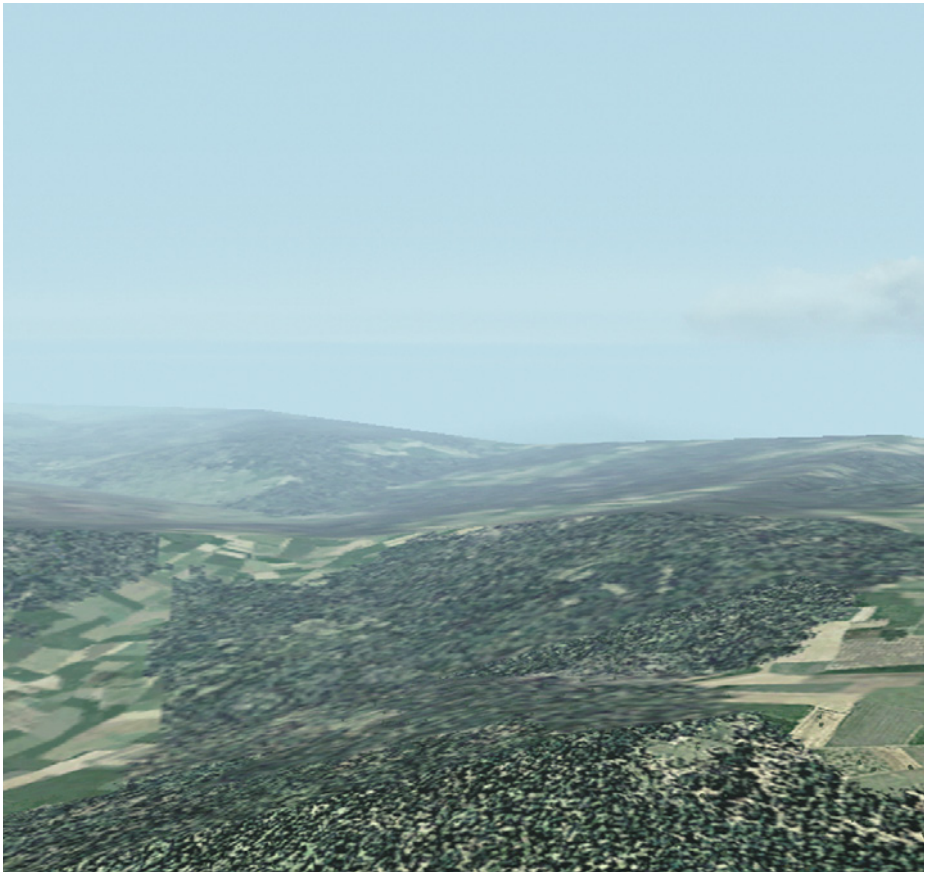
There is one circumstance in which you would not have time to complete everything in this procedure. If your engine fails just after you have taken off, all you can do is select the best place to land that is roughly in front of you. With a bit of luck, and a long runway, you may still be able to land on the runway before its far end.

You will need to keep your actions to the bare minimum; the first and most important thing you must do is rapidly lower the aircraft nose to maintain flying speed. Just after take-off, you are normally flying at a relatively low speed with the nose high. With an engine producing zero power, you will stall in seconds unless you are quick to push the stick forward. Make the briefest of calls to the air traffic controller, shut everything down as before, and concentrate on the landing. Don't even think about returning to land on the runway unless you have turned crosswind. The easiest way to understand why is to try it; take off, climb to 500 feet, pull the throttle back to idle, and then try to turn back and land on the same runway. It's just about possible, but countless pilots have died trying it.

Practice makes lucky

The only way to become competent in surviving engine failure is to practise the procedure over and over again. In a flight simulator you have the advantage of being able to actually land in your chosen field. In flying real PFLs you would need to climb away at 500 feet, and there can be a temptation to be over-optimistic about your chances of actually landing safely in the field.

To give yourself experience of judging heights, try glide approaches to airfields; chop the power anywhere on base leg and then glide to a landing just past the



There aren't many options open to you if the engine fails here

numbers. You need to be able to do this ten times out of ten. Once you have mastered this, try it from overhead at 2,500 feet. Next, add varying degrees of wind; you will be surprised at how much difference this can make. Move to the countryside and try glide approaches to farmers' fields. You may think that these fields are unrealistically small, but they are not. Admittedly, some areas don't contain the enormous fields that do exist, but there is no guarantee that there will be one around when you really need it, so you have to be able to handle normal fields. Finally, fly between two airports and set the engine to fail randomly during your journey.

Learning to handle the failure that will hopefully never come is a vital aspect of a pilot's training; if you are to be a complete simulator pilot, you must be able to do this too. It is a skill that, once learned, is easily forgotten, so you should refresh your memory by practising it once in a while. Permanently having a very low probability random engine failure set on your simulator will not only add a touch of realistic anxiousness to your flying, but will also truly test you when a failure actually happens out of the blue at the worst possible moment in a year or two. ■

Stephen Heyworth

It's safe to say that the first truly photorealistic scenery package for flight simulation is something of a landmark release, and one of the very few FS add-ons to have been featured in the non-specialist press.

We've managed to get our hands on five copies of the first part of the series to find its way into the shops, East & South-East England, and will be only too happy to pass them on to the winners of this issue's competition.

Correct answers to the following three questions will ensure that your name goes in the hat when the winners are drawn from the correct entries we receive.

1) VFR stands for:
a) Very Fine Renditions
b) Visually Fully Realistic
c) Visual Flight Rules

2) The photographic data used in the scenery comes from:
a) Getsnapping PLC
b) Getmapping PLC
c) MillenniumMap PLC

3) The number of CDs included in the East & South-East England package is:
a) 2
b) 3
c) 4

This competition is open to PC Pilot readers across the globe, with the exception of PC Pilot staff, who'll have to save up for their own copy. Send your answers by e-mail to comps@pcpilot.net or on a postcard or the back of an envelope to:

VFR Scenery Competition
PC Pilot
PO Box 11
St. Ives
PE27 3GW
UK

Please be sure to include your full name, address and e-mail address (if you have one) with your answers. The competition closes on 31 January 2003, which should give you plenty of time to work out the answers! The winning entries will be drawn at random from all the correct answers received. Good luck!

Matrox Parhelia & Multi-Screen Simulation

A room with a view?

Although many flight simulator users are only concerned with the quality of the flight deck instrumentation, most of us enjoy the visual experience provided by the external views. Whether you're flying over the crest of some magnificent Alpine mountain range, or on short finals to a congested international airport, it's what you perceive as being 'real' that's important...

If something comes along that can increase that realism, then most of us react like a spoilt child, immediately thinking, "I want it, I want it!" You only have to look around the FS websites to see the growing number of enthusiasts building superb full-size replica cockpits in their own homes, with some even going so far as to buy redundant parts from real airliners. Their goal – the highest degree of realism they can obtain. While this must be the ultimate in home-grown simulation, it does demand a considerable amount of skill and dedication – not to mention a large amount of cash and a similar quantity of understanding from the rest of the household.

Should your relations be unwilling to give up half their home to further the cause of flight simulation, what else can you do to make your simulated flying more immersive? Well, it seems that the developers at Matrox have been hard at work on a new video card that would appear to be ideally suited to the FS community.

Retailing for around £300.00 online, the Matrox Parhelia is not your run-of-the-mill graphics accelerator; although it's by no means slow off the starting blocks, its major strength is that it can handle displays on three monitors at the same time. It doesn't take much imagination to realise what this means to us. We're in the realm of wraparound views, which can make a huge difference when it comes to the reality factor. After all, it's principally your peripheral vision which gives you that sense of three dimensions. Your senses are simply

Feel the width!

not fooled while sat in front of a single monitor screen.

Naturally, the larger the screen the more the depth perception is noticeable, which is where large projector systems can score highly, but once again we're talking about quite a significant financial outlay. Whereas the cost of 17" or even 19" monitors these days is relatively low (somewhere in the region of £250.00 a pair for 17" or £350.00 for 19"), a projector or plasma-based screen could set you back something in excess of £2,000.00.

We're told that the AGP (Advanced Graphics Port) based Parhelia uses the world's first 512-bit GPU (Graphics Processor Unit). The significance of this is that its four-pixel pipeline is able to render four pixels per processor clock cycle, and can sustain this throughput regardless of the amount of shading or texturing it's performing at the same time. It comes with 128Mb of DDR RAM on board, and is the only triple-head video card on the market at the present time. All this pixel power needs to be harnessed to a powerful PC system, however, with the recommended processor being at least 2.0GHz, with 512 Mb of RAM and, of course, three monitors. Incidentally, the card supports both digital flat panel and the more conventional CRT monitors.

Performance

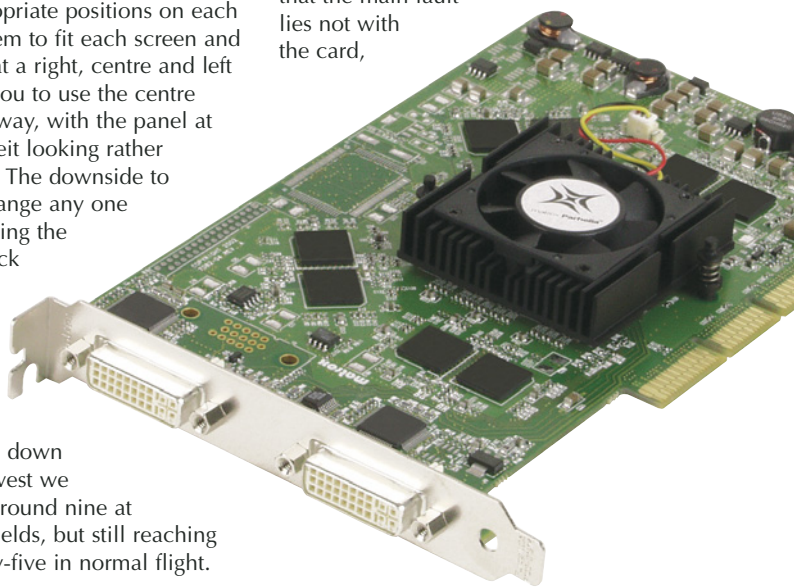
In order to run Flight Simulator 2002 with the Parhelia, you have to set the screen resolution to 1920x480, which equates to quite a low individual screen resolution of 640x480. This in itself is far from ideal, because it makes the instrument panels quite difficult to read; most simulator pilots would run FS at something like 1280x960, or at the very least 1024x768. This is not the only problem, because the instrument panel in 2D mode is stretched across the three screens, which is definitely no good for IFR flight.

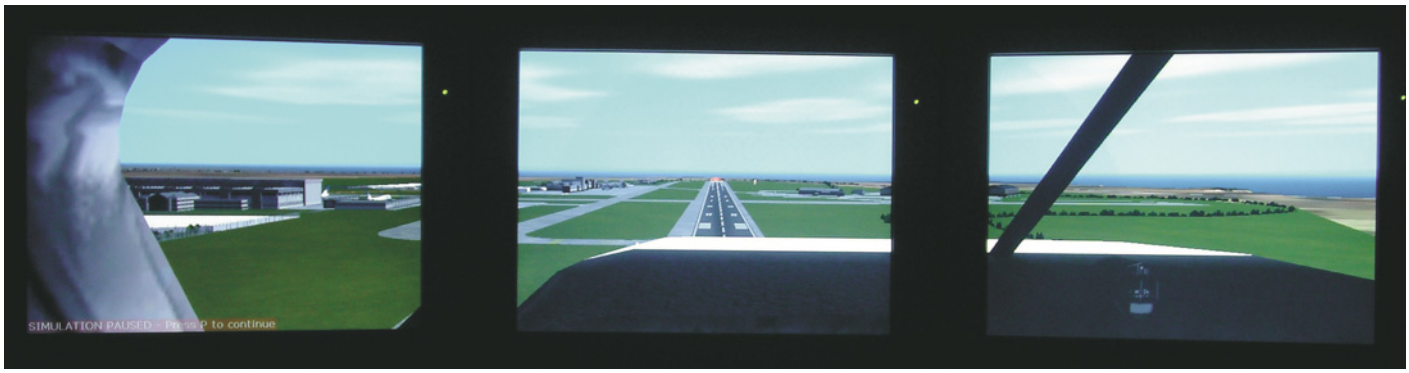
To be fair, the virtual cockpit views look much better, particularly if you move your viewpoint back into the cockpit a little. In this mode it's quite pleasant to fly and provides a whole new outlook on VFR flying, also managing to sustain between 12 and 25 frames per second, depending on the level of rendering and scenery activity at the time.

There is a rather contrived workaround, which entails opening up three separate view ports. You then drag each of these views into the appropriate positions on each monitor, resizing them to fit each screen and eventually arriving at a right, centre and left view. This enables you to use the centre view in the normal way, with the panel at the correct size, albeit looking rather chunky at 640x480. The downside to this is that if you change any one of these views by using the [S] key, or the joystick hat switch, then the whole lot reverts back to 1920x480. This workaround also pulls the frame rates down slightly, with the lowest we recorded hovering around nine at quite congested airfields, but still reaching a respectable twenty-five in normal flight.

We also found the card to be a little on the sensitive side – our usual trick of taking screenshots and using [Alt]-[Tab] to get out of FS2002 didn't go down very well at all; a reboot was the only way to resurrect the system on more than one occasion. Having said that, it's perfectly happy as long as you don't interfere with it in this way. Perhaps a more disturbing problem concerns third-party aircraft and, to some degree, other add-ons; both can sometimes cause a system crash. Strangely, the default aircraft and scenery seem immune to this malady, which tends to occur if you pause the flight and change aircraft. Once again, though, this problem was intermittent.

We approached Matrox about these issues, and were informed by their helpful technical department that the main fault lies not with the card,





The difference to your vision is awesome, but for VFR pilots only!

The whole wide world! Your horizons suddenly seem much greater

Approach at Heathrow in FS2002

but with Flight Simulator itself. Because it uses DirectX 7 calls, it's unable to use the much higher resolutions that the card is capable of. Apparently this also accounts for the instability questions we raised, and this is borne out to some degree by the fact that many other games run quite successfully at resolutions of up to 3072x768, including Microsoft's new Combat Flight Simulator 3, which doesn't rely so much on visual definition inside the cockpit. It's always essential to keep your eyes on the sky around you when you're in a dogfight, and low-level bombing runs and strafing in the Mosquito are absolutely awesome. The view is almost too much to take in as you sweep over the landscape, and this was the first static display we've seen that can actually make you feel nauseous in a dimly-lit room.

Unless Microsoft provides an update for FS2002 that is capable of rectifying the shortcomings we've highlighted, the Parhelia is sadly not really recommended for FS2002 users who like to keep an eye on their instruments, which counts most of us out. If you've just bought CFS3, or prefer the odd hack 'n' slash in mainstream games, then that's a whole different ball game, and you're likely to be absolutely delighted with the Parhelia.

Different strokes

So if the Parhelia doesn't currently serve the needs of the FS community, what other options will give you both the resolution you need for IFR flying and the luxury of that all-important peripheral vision? Well, unless you want to spend a fortune on a full-motion simulator, you'll have to make do with something a little less sophisticated. A likely candidate is an existing freeware software solution called WidevieW, which can be used to create a multi-monitor setup using networked PCs.

Once this is installed, you can have any number of views (hardware permitting) tailored to suit your own scenarios. If you had four computers, for example, you could have the traditional three window viewpoints and the fourth screen could display the control panel. On the other hand, if you only have two machines you can have a full IFR panel on one and a full-screen high-resolution external view on the other. Because each machine is running its own version of FS, you can adapt the display to suit the specification of each machine. In the second example above, for instance, you don't need to use a particularly powerful machine to display the instrument panel, because there's not a great deal of movement in a panel display.

An ideal starting setup would be three (or more) reasonably equipped computer systems, connected together in a LAN (Local Area Network). The downsides to this kind of setup are the cost and the space needed, not to mention a reasonable degree of technical aptitude. You shouldn't be put off by the latter, because most current motherboards, combined with an up-to-date version of Windows, will sort out the majority of the problems you're likely to encounter. If you consider the cost implications of buying the Parhelia and two extra monitors, then you're already halfway to the cost of a couple of computers.

You only have to leaf through a computer magazine or go to a computer fair to realise that the price of quite sophisticated machines has fallen dramatically over the past few years. A P4-based system with a 2GHz processor, for example, complete with all the ancillaries, can now be bought for about £500.00, with similar Athlon-based systems costing about £50.00 less. You don't really need machines of such high spec to run FS2002 anyway. The author of the WidevieW software suggests that anything over 1GHz should be fine.

Assuming you've got the necessary hardware, it's surprisingly not that difficult to get the whole lot talking to each other. Each machine has to have a network card installed, which are then connected to a central hub. The most common form of network these days utilises Cat-5 cabling and RJ 45 connectors that look very similar to standard telephone connectors. You then need to give each machine a unique identity and set them up to work within the same workgroup. These settings are accessed by right clicking your mouse over the Network Neighbourhood or My Network Places icon on your desktop; then choose Properties from the menu that appears.

Unfortunately there are differences in the way in which you set everything up in the various versions of Windows, because Microsoft has made each successive version of its operating system behave in a more civilised manner. Windows ME is a little less awkward to set up than 98, and XP (although based on the NT core) is somewhat easier again. In Windows 2000 you have to nominate an administrator who has to create user accounts for each computer on the network. Consequently, going through every dialogue box and menu option in each of the different versions is not really practical here. We have included

He's even got Joe's beard! (FS2002)

a couple of URLs of sites which contain useful information for those of you who fancy setting up your own network.

Assuming your network is up and running, you're already halfway there, because your machines should already be getting on famously. What you need next are the software modules, which are free to download from any of the major FS sites, and have appeared on more than one occasion on our cover CD. The filenames are wideview.zip by Luciano Napolitano and Peter Dowson's fsuipc.zip. These two products, combined with the Microsoft IPX protocol, are the core elements for coupling together multiple PCs running Flight Simulator, and the software comes with full documentation.

Suffice it to say that one of your machines needs to be nominated as the server, and the rest are regarded as client machines. In order to use the PCs in this configuration, each machine has to have the same FS software installed, including any third-party add-ons. Remember that installing the same programs on several machines may technically contravene the software's licensing agreement; strictly speaking, you may be expected to purchase copies for each client machine!

Once the above settings have been made, you simply need to establish communication between the server and client machines by selecting 'Start' from the modules/WidevieW menu options. This will start the synchronisation process

You'll never feel safe again if you go back to single-screen combat

Now that's a real theatre of war

A lonely spot seems even lonelier

Wooden, wondrous, and now wide!

Cardiff in all its widescreen glory

You'll be seeing plenty of him in CFS3!

and begin updating the views you've nominated on each of the client machines. Just how much of the data is synchronised can be set from the modules menu on each PC using the FSUIPC program. You can also decide how frequently you want this data to be updated. Other than the synchronisation of data, each machine acts totally independently, so you can have whatever view you like wherever you prefer it.

The visual effect of three machines synchronised in this way is precisely what Matrox needs to achieve in order to get flight simmers to see the Parhelia as an essential purchase. Until they do, the networked method would seem to be a better, if rather more complex, option for dedicated simmers. Combat pilots, on the other hand, may well find that they can't live without the Parhelia once they try it. ■

Joe Lavery

Networking on the Net

Useful websites that will help you get started in the art and science of networking:

WidevieW
http://www.wideview.it

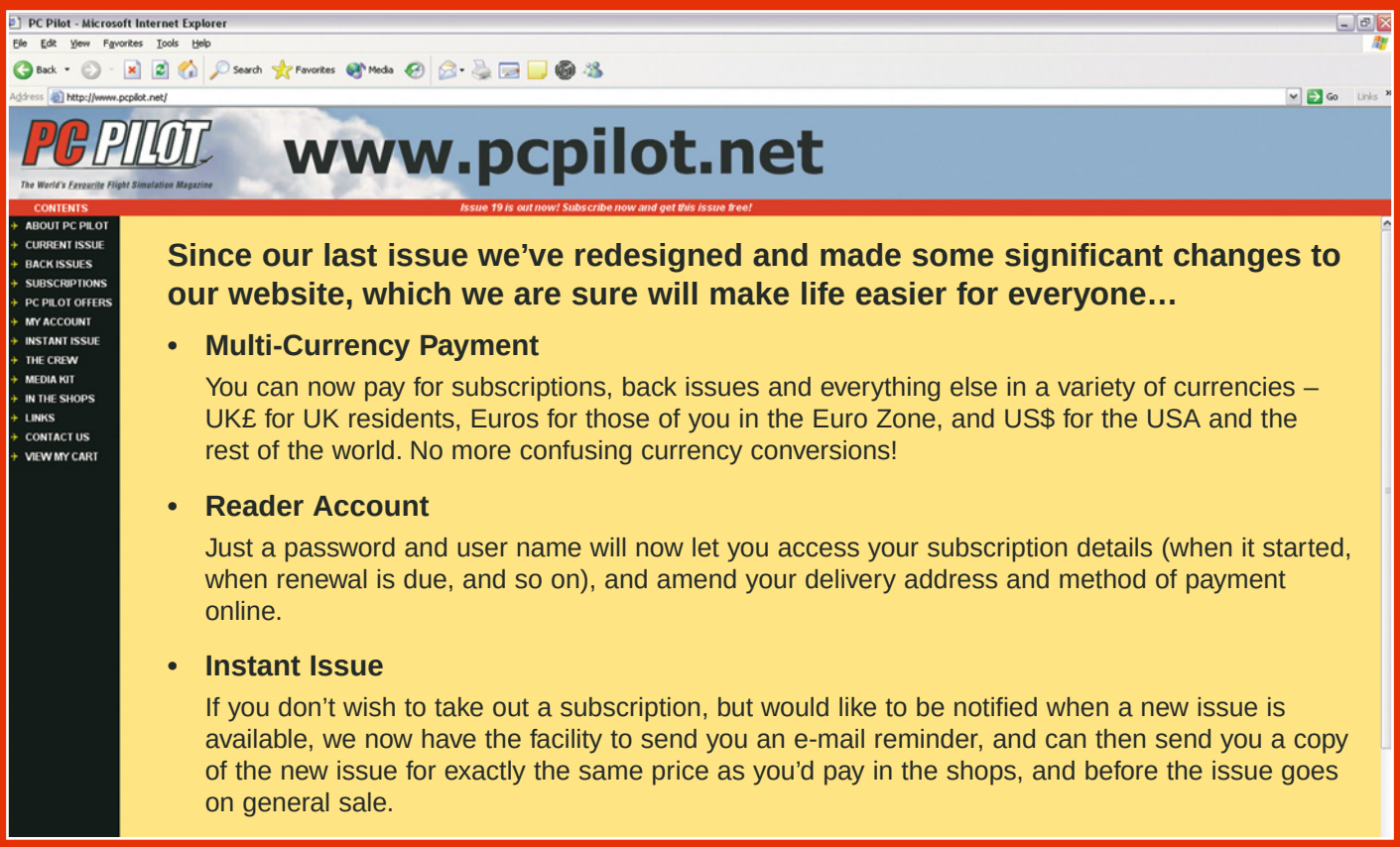
Peter Dowson
http://www.schiratti.com/dowson.html

Escape Airlines International's WidevieW Support forum
http://www.escapeairlines.com/cgi-bin/yabb/YaBB.pl?board=WV

PCEverything
www.pceverything.co.uk/guides/beginners/network.htm

Networking Next
www.networkingnext.com/networking_for_beginners.html

Milsteda Systems Limited
www.milsteda.com/Products_Computers/BeginnersGuide.htm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IN THE SHOPS
LINKS
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VIEW MY CART
Since our last issue we've redesigned and made some significant changes to our website, which we are sure will make life easier for everyone…
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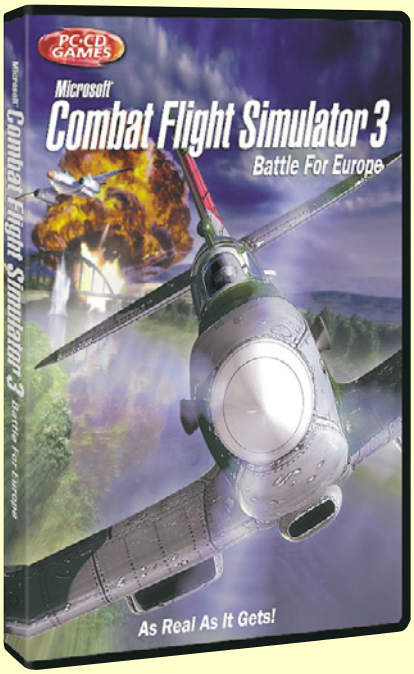

PC PILOT

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Today's flight

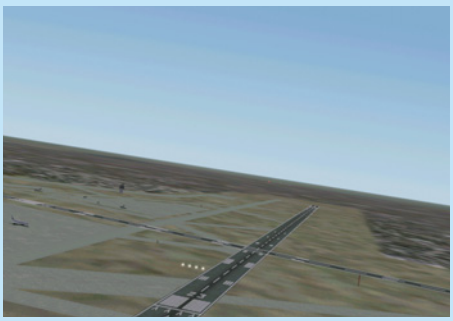
Here's a prediction that will be more accurate than most weather forecasts: On our short flight from Amsterdam, Holland, to Hamburg, Germany, we're going to lose some instrumentation.

Losing instrumentation during instrument meteorological conditions is among the worst things that can happen to a pilot. After all, instruments are the only means by which a pilot can know where he's going under those conditions. Instrumentation loss is a sound reason why pilots should know how their aircraft behaves, so that they are able to fly it in reduced circumstances. Fortunately for us, we've been flying the Mooney Bravo in our tutorials for more than two years, so we're very familiar with it. Jumping from one aircraft to another – as flight simmers are free to do – undermines our ability to know the aircraft.

We know it's going to happen on this flight, because we control our simulated flights, but pilots never know when their instruments are going to fail. They only know during training exercises, which is what this flight is about. We're going to deliberately foul an instrument during instrument flight conditions so we can gain experience flying without the instrument when we need it the most.

Departure

We'll start our flight at Amsterdam's Schiphol International airport. It's a busy commercial airport, with aircraft of all types and sizes departing and arriving from early morning until late at night. Among its ten runways is a nice 6,600-foot (1,830m) surface that's ideal for our general-aviation aircraft. With our southwesterly winds, we'll use runway 22.



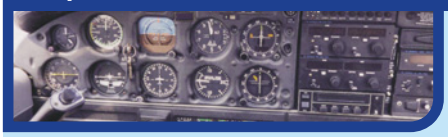
Destination

Our flight will finish at Hamburg, Germany – a commercial airport which is not as busy as the one at Amsterdam. It has four runways with ILS (Instrument Landing Systems), which will make our approach easy. Runway 23 is ideal for us in today's southwesterly winds.

Our route

The IFR routes between Amsterdam and Hamburg are not direct; they take us north for nearly 25 miles before turning east towards Hamburg. Numerous course changes will be required, even on this short flight. The SID (Standard Instrument Departure) procedure involves at least seven course changes. The en route chart shows four or five course changes. Some of the SID overlaps some of the en route chart, so where the SID ends and where the en route portion begins is unclear. The Hamburg approach chart shows one course change of 162 degrees to intercept the ILS. All told, we count eleven course changes in a one-hour flight, so you would be kept busy even if no problems were to arise.

Setup data



Like any pilot preparing a flight, you'll need to get your simulator and aircraft ready. Select your aircraft, establish your weather, set the date and time, and file your flight plan according to the information in our setup boxes. Spending a few minutes on these preparations will provide the environment and conditions to make your flight realistic, challenging and enjoyable.

Select your aircraft

Fly with us in our Mooney Bravo IFR version. If you want to use a different aircraft, wait until after flying this tutorial with us at least once.

Establish today's weather

The following settings will give you realistic conditions for a typical autumn instrument flight in northwestern Europe. These conditions will serve as your weather briefing.

Use 'global weather'

Clouds 1,000 to 3,000 MSL: Overcast stratus

Clouds 3,000 to 9,000 MSL: 5/8 cumulus

Precipitation: Rain

Wind up to 3,000 MSL:
16 knots from 235 degrees

Wind up to 9,000 MSL:
20 knots from 240 degrees

Temperature, dew point up to 3,000 MSL:
55°F/13°C, 54°F/12°C

Temperature, dew point up to 6,000 MSL:
45°F/07°C, 44°F/07°C

Temperature, dew point up to 9,000 MSL:
35°F/02°C, 34°F/01°C

Pressure: 30.6 inches, 1036 millibars

Visibility: 3 statute miles, 4.8km

Set the date and time

Set your date for any day during autumn 2002, and set your time for any time you like – day, night, dusk or dawn.

Tune your radios

Set your Nav-1 and Nav-2 radios and your OBI for the first frequencies and radials you will use.

Com-1: 121.7 (Amsterdam Ground Control)

Com-2: not needed

Nav-1 Primary: 117.8 (Pampus PAM)

Nav-1 Standby: 112.4 (Eelde EEL)

Nav-2 Primary: 108.4 (Schiphol SPL)

Nav-2 Standby: 113.3 (Spijkerboor SPY)

OBI-1: 028/208

OBI-2: 054/234

ADF: 350.5: Hamburg (FU)

Study your charts

As usual, a brief review of our flight charts shows how we will get to our destination safely under normal conditions. Knowing our flight route before we start will prepare us for anything that might happen en route.

Departure

An established departure procedure with routes and minimums for runway 22 at Amsterdam (EHAM) is readily available in our SIMCharts program – 'Amsterdam ANDIK Departures'.

Don't let all those lines on the SID intimidate you – they show procedures for seven runways. You'll be taking off from only one, so you need only pay attention to the path for runway 22. Similarly, only a few of the textual guidelines apply to you, so disregard the others. Don't waste your energies on requirements, for example, that clearly don't apply to you, such as those for jets.

Be sure to read all the other notations on the chart, and follow instructions that do apply to you. For example, the text calls on pilots to "perform turns in due time and at 25-degree bank angles". Another calls for pilots to contact the tower and report altitude when passing through 2,000 feet (610m).

The SID shows four left turns after taking off: The first is a 38-degree left turn after we reach 500 feet above MSL (Mean Sea Level). The second is a 100-degree left turn at 3.1 miles from Schiphol VOR (SPL) according to DME (Distance Measuring Equipment). The third is a 57-degree left turn towards Pampus VOR (PAM) on its 028/208 inbound radial. Notice that the instruction in the table for runway 22 requires you to begin this turn at the PAM 223 radial. The fourth turn is an 11-degree left towards the ANDIK fix along PAM's 017/197 outbound radial.

Our position at ANDIK will be determined by the intersection of PAM's 017/197 radial and Spijkerboor's (SPY) 054/234 radial. We must not climb higher than 6,000 feet (1,830m) MSL during this procedure, according to the textual instructions on the chart.

The first leg of the SID from take-off to PAM is 15 miles and will last about five minutes.

The second leg from PAM to ANDIK is 26 miles and will last about ten minutes. The entire procedure from take-off to ANDIK will last about 15 minutes.

En route

The en route chart needed for this flight is the European SIMChart E(LO)5. At ANDIK intersection, we will turn right and join the R12 airway. This SID overlaps the en route chart for a while. We'll follow the en route chart from ANDIK, because we'll be in the airways after that point. Our en route cruising altitude will be flight level 70 – approximately 7,000 feet (2,135m) – as shown on the airways.

From ANDIK, we'll head 054 degrees to GRONY intersection, which is 36 miles from ANDIK; about 19 minutes will elapse on this leg in our Bravo. At GRONY, we'll turn right and head 083 for 22 miles to Eelde VOR (EEL). This second leg will take about seven minutes. After passing EEL, we'll continue on our 083 heading to Weser VOR (WSR), which is 80 miles from EEL. This third leg will take around 29 minutes. At WSR, we'll turn left and head 054 to Elbe VOR (LBE), which is 32 miles from WSR. This fourth and final en route leg will last around 11 minutes. All told, this en route section of the flight should take us about one hour.

At LBE, we'll leave the en route section and enter the ILS (Instrument Landing System) approach procedure for Hamburg's runway 23.

Arrival/Approach

The approach chart we're using is 'Hamburg Germany ILS Rwy 23'. This arrival procedure for EDDH's runway 23 ILS is fairly easy. At LBE, we will turn right 14 degrees to a 068 heading and descend 4,000 feet to a specified altitude of 3,000 MSL. At the LBE D22.1 fix, which is 22.1 miles from LBE per DME, we will turn right and join the ILS's localizer and glideslope.

Our right turn into the ILS will not be exactly as shown on this chart, for two reasons. Firstly, aircraft travelling at different speeds will create different arcs even with standard-rate turns. Secondly, there is no pivot point for reference, such as a DME arc, so there's no way anybody could know how to follow this curve. We will therefore improvise by turning right 117 degrees at D22.1 and heading 185 degrees, so we can intercept the localizer at a 45-degree angle.

The ILS entry point for both the localizer and the glideslope is 9.3 miles from Alster VOR (ALF), which is on the airport grounds. This configuration is rather unusual in that DME is provided by a VOR at the airport, rather than by the localizer.

When we intercept the glideslope, we will break our 3,000 altitude and follow the glideslope and localizer to the runway.

This procedure from LBE to landing is 37.5 miles, and will last about 15 minutes.

Missed approach

The missed-approach procedure is among the easier of those we have encountered in the three years of these tutorials. If we cannot land, we simply climb towards 4,000 MSL, head straight over the runway and past the airport to Hamburg NDB (FU) or the D5.5 fix from the localizer ALF (both these fixes are in the same place), then turn right and head to LBE.

Planning your flight

Based on these charts, lay out the course you will fly from EHAM to EDDH. Include the relevant navaids, intersections and fixes shown on the charts.

Use traditional paper charts and flight plans or an electronic flight planner. Paper charts and flight plans are still useful for seeing our course and estimated times at a glance. If you use the electronic flight planner, be sure to select 'IFR' so ATC will recognise your flight correctly.

Enter the following data on your flight plan:

Departure: Amsterdam Holland (EHAM) runway 22

Arrival: Hamburg Germany (EDDH)

Waypoint: Pampus VOR (PAM)

Waypoint: ANDIK intersection

Waypoint: GRONY intersection

Waypoint: Eelde VOR (EEL)

Waypoint: Weser VOR (WSR)

Waypoint: Elbe VOR (LBE)

Altitude: 7,000 feet (2,135m) MSL

Refer to our prior tutorials

If you don't have our previous tutorials, they are all available either in back issues or on our 3-in-1 CDs. A complete list of the subjects covered in previous tutorials is included on the cover CD. For more details of back issues and the issues available on CD format, see our subscriptions page or the website, www.pcpilot.net.

Is there anything else you would like to see covered in our tutorials? Let us know at mail@pcpilot.net and we'll look into it.

IFR (Instrument Flight Rules) Tutorial Part 20 Getting There Without All The Facts

Losing instruments during instrument flight

What should be a normal, short IFR flight between two European cities will turn into a new challenge. To our benefit, we know in advance that something out of the ordinary will happen, but most pilots have no hint of trouble that might arise; that's why they prepare for their flights as though anything could happen.

After you have prepared your aircraft, your cockpit and yourself for this flight, contact the Amsterdam tower for take-off clearances. Follow instructions from ATC (Air Traffic Control), including hand-offs and clearances. If the simulator you are using has no ATC, imagine that you have requested and received all required clearances.

Take off

Begin your take-off as soon as ATC clearance is received. In lieu of ATC, set your transponder for 5213, which is the setting we received from ATC.

Check your engine instruments during your take-off roll. The Bravo's manifold pressure should be at or above 38, and the oil pressure should be at least 24. The Bravo should lift off at about 60 to 65 knots. (Different characteristics apply to other aircraft.) If your aircraft isn't performing normally, abort your take-off.

During take-off and climbout on this flight, you will have a nice headwind that will help.

Turn off your taxi light after taking off. You may turn off your strobe when you are in clouds.

Adjust your pitch to maintain about 85 knots during your climbout. As you are climbing, adjust your cowl flap to keep your engine temperature in the green range – neither too hot nor too cool. In this cool autumn air, you might not need much cowl flap. After your initial climbout, your Bravo should be able to climb easily at 700 feet per minute and at 120 knots. Retract your flaps when your airspeed reaches 90 knots.

Icing is possible in the cold temperatures we will encounter during this flight, so be sure your de-icers and pitot heat are turned on.

Be sure to follow ATC's instructions, hand-offs and clearances throughout your flight.

Mooney Bravo departing Amsterdam

Depart Amsterdam

After taking off, follow the simple SID procedure.

At 500 feet MSL, turn left 38 degrees and head 185 degrees.

When 3.1 miles from Schiphol VOR (SPL) according to your DME, turn left 100 degrees and head 085 degrees.

When you intercept the 223 radial to Pampus VOR (PAM), turn left again and intercept the 028/208 radial to PAM, as indicated on the chart.

At PAM, turn left 11 degrees, and head 017 from PAM towards ANDIK intersection.

Climb steadily towards the SID's mandated 6,000-foot (1,830m) altitude. You will probably reach it before arriving at PAM.

As soon as you enter the 25-mile, ten-minute leg from PAM to ANDIK, switch the navigation radios you will need for determining the next fix. Switch your Nav-2 to 113.3 for SPY, and set your OBI-2 to 054. Leave Nav-1 on PAM. Be sure to maintain your 17-degree course along this 017 outbound radial from PAM so you will intersect the R12 airway at ANDIK. If you drift off this radial, you will not join R12 at ANDIK.

Be sure to adjust your fuel/air mixture as you climb to cruising altitude. The higher your engine gets, the less oxygen it will have for combustion, so you will need to decrease the fuel portion of the mixture to compensate. This Bravo engine performs best when the TIT (Turbine Inlet Temperature) gauge reads between 1,600 and 1,700. Adjust the mixture so the TIT is within this range. Do not exceed 1,750.

When you are 25 miles from PAM on its 017/197 radial and you intersect the SPY 054/234 radial, you will be at ANDIK. Here you will transition from the SID to the en route portion of your flight. After this point, follow your en route course towards Eelde VOR (EEL) using your IFR en route chart.

Fly en route towards Hamburg

At ANDIK, turn right 37 degrees and join the R12 airway. This airway follows the 054/234 radial from SPY. Jot down the time that you enter this airway and use timing and DME to pace your progress along this 55-mile, 17-minute leg. (That 20-knot tailwind from directly behind us on this leg will add 20 knots to our airspeed and shorten our durations.) Climb to your 7,000-foot (2,135m) cruising altitude from your 6,000-foot (1,830m) SID altitude.

Conserve fuel by changing the propeller pitch at higher altitudes. Our Bravo cruised easily at 170 knots indicated airspeed, and used 15.5 gallons of fuel per hour with the following engine settings: RPM 2,100, manifold pressure 34, and TIT 1,600. If your engine is using fuel too fast, you could run out of fuel short of your destination. Adjust your settings until your airspeed and fuel-flow rates are optimised.

Switch your Nav-1 to EEL, set your OBI-1 to 083, and switch your DME to Nav-2, so you can determine your arrival at GRONY and your interception of the G105 airway from GRONY to EEL. Be sure to maintain your 054 course along this airway.

This leg shows how boring instrument flight can be when there's nothing to do or see for a while. We often get requests for transatlantic tutorials such as from London to New York, but how excruciating do you think a five-hour instrument flight would be if fifteen idle minutes are too much to cope with?

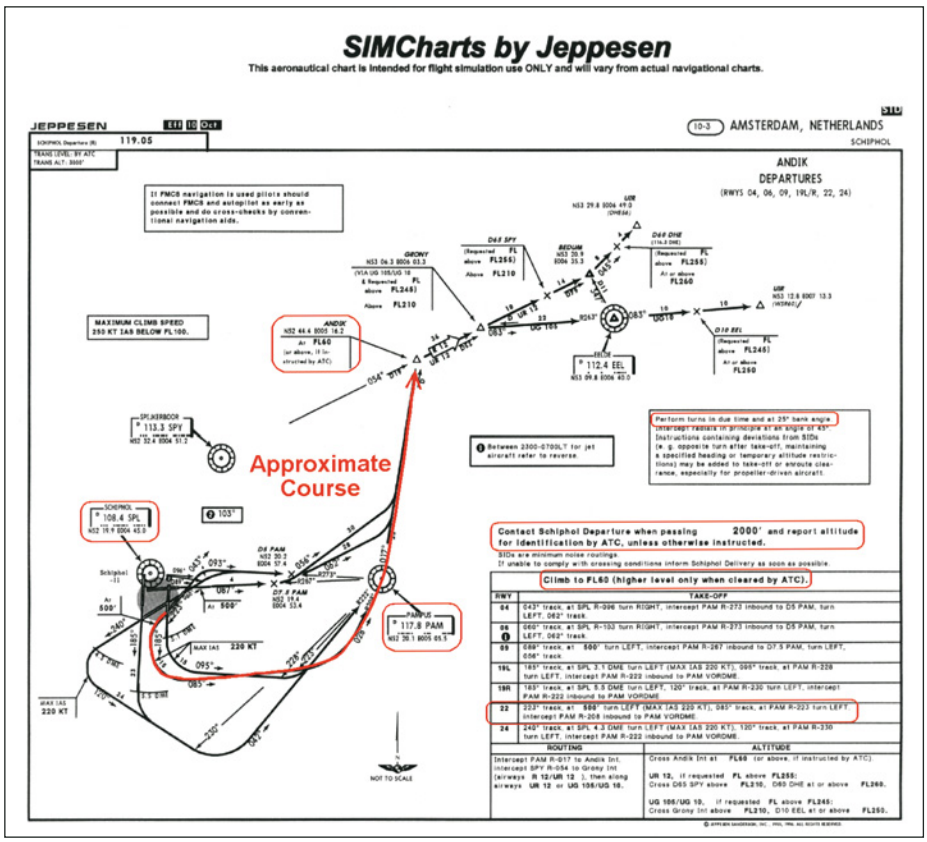
When you are 55 miles from SPY on its 054 radial and you intersect the 083 radial to EEL, you will be at GRONY intersection. Turn right 29 degrees and head 083 degrees towards EEL. Again, jot down the time and use timing and DME to track yourself on this 22-mile, seven-minute second leg. Switch your Nav-1 to WSR and set your OBI-1 to 083.

Oh, no! Instrument failure. The artificial horizon isn't working properly, and we cannot use it any more on this flight. We have no visual references from outside, because we're flying in instrument meteorological conditions. Neither do we have the benefit of physical sensation, because we're using a simulator.

To simulate this instrument failure, simply stick a Post-it note or piece of paper over your artificial horizon; this is similar to what a real-world flight instructor would do with a student pilot.

The failure of an artificial horizon isn't catastrophic, but it will require additional attention to, and interpretation of, other flight instruments. In lieu of your artificial horizon, use your altimeter, vertical speed indicator, turn co-ordinator, heading indicator and airspeed indicator to determine your aircraft's status.

To see how to use these other instruments in lieu of your artificial horizon, effect a few simple experimental status changes and observe how those instruments respond. First, lower your pitch slightly, then look at how your airspeed indicator, altimeter and vertical speed indicator respond. Then raise your pitch slightly and see again how those instruments respond to this change. Then turn right or left slightly and look at how your turn co-ordinator, heading indicator and altimeter respond. After you've experimented with these changes and results, and you understand how to use other instruments in lieu of the artificial horizon, put yourself back on course and on cruising altitude for the remainder of your en route portion.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Approximate Course
Contact Schiphol Departure when passing 2000' and report altitude for identification by ATC, unless otherwise instructed.
Climb to FL60 (higher level only when cleared by ATC).
TAKE-OFF
ROUTING
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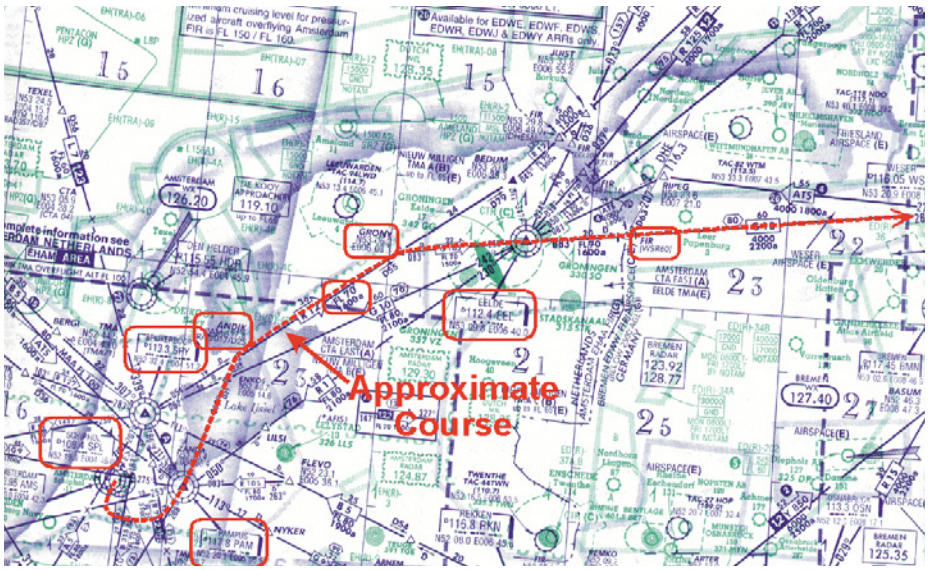
Amsterdam Schiphol SID

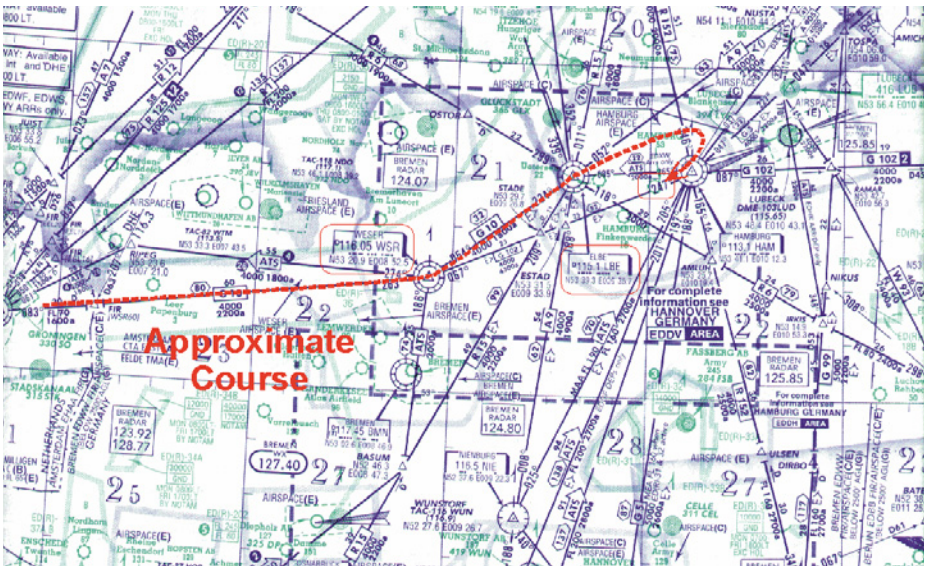


The route we will take from Schiphol

During your en route cruise, the heavier weight of the dormant fuel tank will cause your aircraft to bank towards that side, and any crosswind component will continually push your aircraft off course. Monitor your functioning flight instruments continually. Maintain your altitude according to your altimeter and vertical speed indicator, and maintain your heading according to your heading indicator and your omnibearing indicators.

Execute your course changes delicately so you won't overbank. Most of your turns are minor course changes that will be easy to execute. The sharpest turns will be during the approach to Hamburg, and your airspeed will be slow enough that they are unlikely to give you much trouble.

Use your turn co-ordinator to execute standard-rate, co-ordinated turns. Keep the needle on the left or right mark as appropriate, and keep the ball in the centre of the inclinometer. If the altimeter and vertical speed indicators are showing altitude loss, correct by pulling back slightly on your yoke.



Our approximate course into Hamburg

As you pass EEL, continue on your 083 heading towards Weser VOR (WSR). Note the time, and follow your progress along the 80-mile, 29-minute third leg. Check your instruments for heading, altitude and airspeed. Any changes in altitude, heading or airspeed will indicate changes in your aircraft's status on its axes, which would normally be revealed by your artificial horizon. Correct as necessary to keep these flight conditions as desired. Remember that the 240 tailwind will push you ahead and slightly towards your left during this leg.

Twenty miles east of EEL is an intersection labeled 'FIR (WSR60)'. This intersection is also 60 miles west of WSR, thus the WSR60 designation. It has no navigation significance for us, but it can be useful. Being about halfway between our origin and destination, it's a good place for us to switch our fuel supply. Switching halfway will make the weight of both fuel tanks approximately equal during the Hamburg approach procedure, which will make handling the aircraft a lot easier. So, when you reach this intersection, switch your fuel tank to the one you have not been using.

When you reach WSR, turn left 29 degrees and head 054 towards LBE. Be sure to execute a standard-rate turn, and keep your altitude and airspeed where they should be. This 32-mile fourth leg should take about 10 or 11 minutes with that handy 20-knot tailwind.

Join the Hamburg approach

Normally we would begin descending towards Hamburg when about 21 miles from the airport, but the ILS approach procedure for runway 23 necessitates a different descent procedure: its 3,000-foot (915m) altitude requires only a 4,000-foot (1,220m) descent from our cruising altitude, the entire procedure is longer than 35 miles from initial approach fix (IAF) to runway threshold, and the first leg is 22 miles long, which is longer than the rule-of-thumb descent distance.

Accordingly we will begin our descent from our 7,000-foot (2,135m) cruising altitude to the approach procedure's 3,000-foot (915m) altitude when we pass the IAF, which is more than 35 miles from the airport. The IAF is at LBE, so we will transition from the en route airway to the ILS approach procedure at LBE.

Keep a close watch on your working flight instruments through every phase of this procedure, and pause at any time. You will not have a flight instructor or a co-pilot with you to help you perform all these manoeuvres properly in the required sequence and at the correct times.

At LBE, turn right 14 degrees and head 068 degrees along LBE's 068 outbound radial. Descend to 3,000 feet (915m) MSL as shown on the chart.

To descend without an artificial horizon, simply reduce airspeed and descend at 500 feet per minute according to your vertical speed indicator. By descending at 500 feet per minute and at about 170 knots indicated airspeed, you should reach 3,000 MSL about 12 miles from LBE. That's slightly more than half the distance of this leg, so you have plenty of room for error on your descent.

Adjust power as necessary to maintain this 500-foot descent rate while keeping airspeed at the desired 170 knots. Do not adjust your pitch during this descent. Do not allow your airspeed to rise into the yellow zone on your airspeed indicator.

Those of you who are familiar with the Mooney Bravo will feel comfortable descending without an attitude indicator, because you will know how this aircraft behaves and how to apply just the right amount of power and pitch to make it do what you want it to do. Those who are unfamiliar with this plane will need to continually adjust power and pitch until the descent is smooth and graceful. The 22-mile descent and 3,000-foot altitude will provide enough margin for error compensation.

While descending, prepare for your approach and landing at Hamburg. Check the barometric reading for Hamburg and adjust your altimeter as needed. Switch your Nav-2 to 115.1 for LBE, adjust the OBI-2 needle to 068, and follow your course on OBI-2. Switch Nav-1 to 111.5 for the runway 23 localizer. Check your fuel supply again to be sure you are drawing from the heavier tank. Be absolutely sure to stay on course and to maintain your altitude and your desired airspeed.

You should reach the 3,000-foot (915m) approach altitude about 19 or 20 miles from LBE, which is about two or three miles from D22.1 LBE. When you reach the prescribed altitude, level off and reduce airspeed to 110 knots indicated. This low airspeed will

The easiest way to fail the artificial horizon instrument

enable you to execute the next two turns easily without your artificial horizon. Adjust propeller and fuel mixture as necessary.

Your next manoeuvre will be a right turn at fix D22.1 LBE. This fix is 22.1 miles from LBE on the 068 radial according to your DME. Remember that this turn will not follow the precise track shown on the chart, and we are going to execute two smaller right turns with a short straight leg between them.

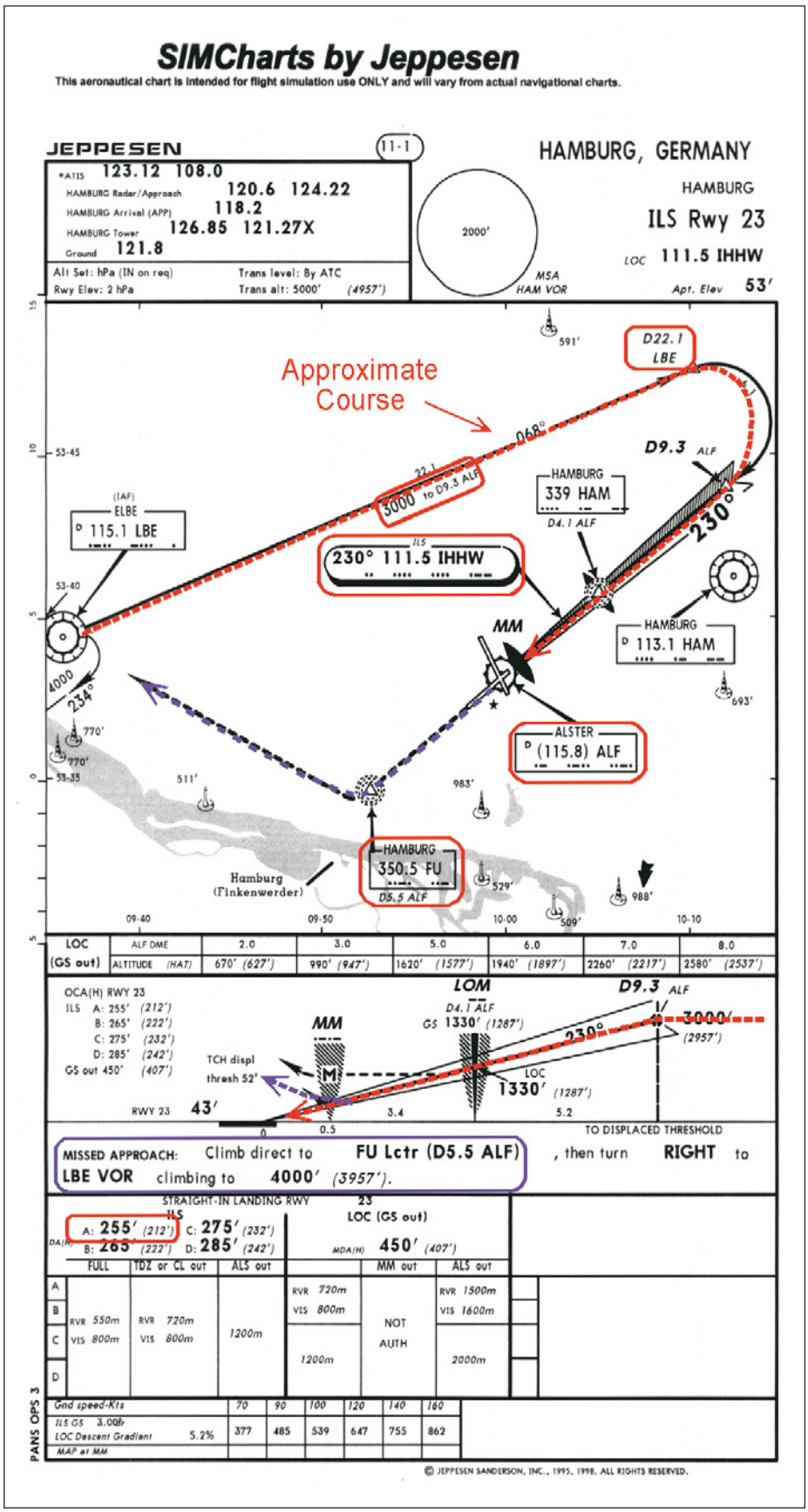
The first of these two turns will be the most difficult on this flight without your artificial horizon, because it will last the longest – about one minute. The longer you are in a turn, the more chances there are that things can go wrong, so pay close attention to what you are doing.

When you get to D22.1 LBE, turn right 117 degrees and head 185. Enter your turn gently. Execute a clean standard-rate, co-ordinate turn while maintaining your 3,000 MSL altitude and your 110-knot airspeed. Continually check your turn co-ordinator, inclinometer, airspeed indicator, altimeter and heading indicator. Adjust your bank, pitch and power as necessary to maintain the desired flight status. Do not descend below 3,000 MSL. Do not exceed the standard-rate bank. Do not gain or lose airspeed.

If you find your aircraft losing altitude and airspeed during this turn, you are pitched up too much, and a stall is imminent. Advance your throttle fully and lower your pitch gently. If your aircraft doesn't recover, straighten out and level off immediately, then regain your altitude. You might require a missed approach, but that's a lot better than stalling and falling through the clouds to the ground. Fly back to LBE and redo this approach procedure from the beginning if you cannot recover in time to join the ILS. Otherwise, advance to the next paragraph.

Just before reaching 185, gently roll out of your turn and head 185 towards the localizer. This heading will enable you to intercept the localizer at a 45-degree angle, which will be much easier than the turn you have just completed. After completing this first turn, you will fly a short straight course until just before intercepting the localizer. Then you will turn right 45 degrees and align with the localizer beacon.

When OBI-1 starts sweeping inward, turn right gently and align yourself with the localizer. This localizer and glideslope are 9.3 miles from the Alster VOR (ALF), which is on the airport grounds. Still, there will be plenty of distance for aligning the two ILS beacons. Follow the localizer until you intercept the glideslope, then simply follow both beacons normally towards the runway. To begin your descent, reduce power gently so your glideslope needle is centred. As you are descending along the glideslope, adjust your power to maintain airspeed between 90 and 100 knots.



ILS arrival for runway 23 at Hamburg

Following a glideslope without an attitude indicator will emphasise the importance of knowing your aircraft. Those of you who are familiar with the Bravo will know how much pitch and power to apply just by the feel of the aircraft. Others will need to repeatedly adjust pitch and power until the aircraft is following the glideslope gracefully. There won't be as much time, distance or altitude to compensate for errors as there was on the initial descent for this instrument approach, so pay close attention.

Land at Hamburg

The specified decision height of 255 feet is well below the 1,000-foot cloud ceiling, so you will have about one minute between these important altitudes to spot the runway environment ahead. It will not be plainly visible in this low-visibility rain, so look for any signs of it, especially the landing lights. If you see the runway environment ahead of you by the time you reach the 255-foot decision height, proceed with your landing. If you still don't see it when you reach 255 feet, skip the next paragraph and execute a missed approach.

Once you see the runway environment ahead, the malfunction of your artificial horizon won't matter any more, because you will fly visually from here on. Land normally, remembering the headwind and slightly left crosswind. You might need to remove your instrument panel temporarily or adjust your view screen to see the runway on your final approach; these actions are just like real-world pilots stretching up in their seats to see over the panel.

Need a missed approach?

If you cannot see the runway environment ahead of you when you reach the 255-foot decision height, you must execute a missed approach. Fly straight over the airport to Hamburg NDB while climbing to 4,000 feet (1,220m), then turn right and head to LBE.

Congratulations!

You have successfully flown in instrument meteorological conditions without an important flight instrument. Fine work, indeed. See you next time. ■

Bill Stack

Our authors

Bill Stack is an expert flight simmer and author of several popular flight sim books. Nels Anderson, our technical consultant, is a certified pilot and president of FlightSim.com. Learn more about flying like a real pilot from Bill Stack's six flight sim books at www.topskills.com/flitsim.htm.

WANTED – ASPIRING YOUNG PILOTS

The Royal Aero Club Trust, as part of its Flying for Youth programme, has launched a bursary scheme for young people who wish to upgrade their existing qualifications in a wide range of aviation-related activities, from paragliding to building and flying model aeroplanes – or even 'upgrading' from simulated flying to the real thing.

The Trust has kicked off the scheme by making three bursaries available, and of particular interest to young flight simmers is the first industry donation from Just Flight. PC Pilot is proud to be part of the scheme, and the good news is that there is £500.00 up for grabs for a young reader, aged between 16 and 21, who wants to convert their stick time on PC into flying training.

To be considered for the bursary, write and tell us in not more than 700 words why you think you deserve the financial assistance. What we need to see, in addition to an interest in flight simulation, is a real desire to undertake some formal flying training. Priority will be given to those who have a goal to their training, such as building PPL hours and becoming a career pilot.

Send your applications as a Word or text document to:

bursary@pcpilot.net or by post to:

RAEC Bursary c/o PC Pilot, PO Box 11, St. Ives, PE27 3GW

Entries are open to UK residents aged between 16 and 21 at the time of entry, and applications must be received no later than 31 January 2003.

You can obtain more details about the Royal Aero Club Trust and the bursary scheme from their website at **www.royalaeroclubtrust.org.**

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While many of us enjoy the luxury of broadband downloads, we realise that not everyone has similar access, if indeed any at all, to the Internet; we hope that these files will nonetheless allow you to enjoy some of the excellent freeware downloads available.

Once again we would like to thank the contributing authors for their selfless work in producing these outstanding aircraft and scenery and allowing us to share them with you. If you enjoy a particular file, drop the author(s) a line of thanks – they deserve it.

The Gypo four in full flight

The Red Arrows package

Jet Aircraft

Flight Simulator 2002

Authors: Mark Beaumont, Mikko Maliniemi and Kari Virtanen

Excellent cockpit

There's close… and there's close!

Synchronised perfection

How good must that feel?

You've got company!

Although many flight sim enthusiasts are very serious about the aircraft they fly, and the manner in which they fly them, there can't be many of us who haven't dreamed of flying a fast single-seat jet of some description. Undoubtedly we all have our favourites, but it takes a very special pilot to enter the world of aerobatic formation flying; the precision and expertise needed to fly at four hundred knots, just a few feet away from half a dozen other similarly gifted souls, is difficult to comprehend. Consequently those who are invited to join the Red Arrows display team surely regard it as the pinnacle of their careers.

When a package appears that provides us with the opportunity to emulate these aerobatic knights of the sky, it has to be given the star treatment. There can't be any of you who aren't familiar with the Red Arrows – the UK's premier Royal Air Force aerobatic team who have the enviable job of travelling around the world and appearing at various airborne venues flying the BAe Hawk T.1/A. It's a tough life but someone has to do it…

What we have here is a very fine simulation of the Hawk, but with the added facility of being able to fly the Gypo section formation of four Hawk aircraft, or the famous Diamond Nine (the back four of which comprise the Gypo section), where you have nine aircraft with panel and specific internal/external views.

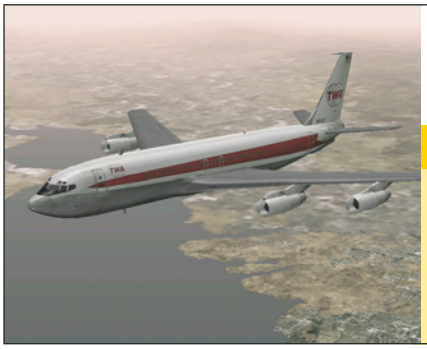
As you can see from the screenshots, flying the Hawk is brilliant, particularly when you use the smoke effect. Incidentally, you can change the colour of the smoke by editing the aircraft.cfg file for the different aircraft. You'll find that seeing other Hawks all around you as you fly is quite a buzz, so the POV hat switch on your joystick is going to get quite a battering as you flick between the various views.

The whole package was compiled by Mark 'Dark Moment' Beaumont, but contains aircraft, panels, sounds and other effects created by a whole host of acclaimed authors. The aircraft was originally designed by Owen Hewitt and Mikko Maliniemi, while the concept and innovative design of the formation is the work of Kari Virtanen. Eric Marciano designed the HUD, with Massimo Taccoli and Paolo Zamprano being responsible for the gauges, which were originally used in their Aermacchi MB-339 panel. In fact the panel is a hybrid rework of existing panels by Tony Smith and Mikko Maliniemi.

The Red Arrows website, which contains details of all the team's 2002 display manouevres, can be found at www.raf.mod.uk/reds/redhome.html. ■

Joe Lavery

The rest of the best... all on the cover CD



TWA B-707-320B
Jet Aircraft

Fly! 2

Author: Jean Sabatier
(ROTW – http://fly.simvol.org)

DC-3/C-49
Prop Aircraft

Flight Unlimited III

Authors: Ansgar Avermeyer & Jon Point
Cockpit: Steve Hess & Bill Rambow

The Grand Canyon Experience
(Twin Otter & Cessna 207)
Prop Aircraft

X-Plane

Author: Jeffrey W. Hanka

Cité de l'Espace
Scenery

Flight Simulator 2002

Author: Vincent Meens

Frontier Airlines Convair 580
Prop Aircraft

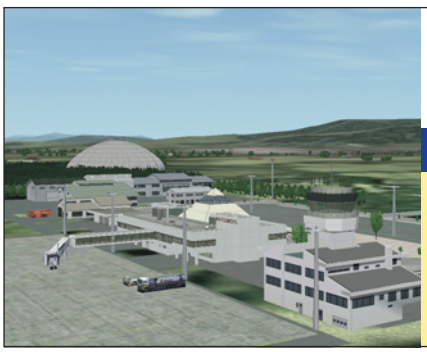
Flight Simulator 2002

Authors: Greg Pepper & Tom Gibson

Boeing F/A-18C VFA-81 'Sunliners'
Jet Aircraft

Flight Simulator 2002

Author: Laurie Gregoire



Matumoto Nagano, Japan
Scenery

Flight Simulator 2002

Author: Kazuhiro Miyazaki

Nord N.2501 Noratlas
Prop aircraft

Flight Simulator 2002

Author: Jean-François Martin

Sukhoi Su-37 Terminator
Jet Aircraft

Flight Simulator 2002

Author: Peter Davies
Panel: Robin Ritchie

Eurocopter AS.332L2
Hong Kong Government Flying Service
Helicopter

Flight Simulator 2000

Author: Dirk E. Fassbender
Paint: Bernhard Behle

ATI Radeon 9700 PRO

ATI gets airborne!

In September ATI released their highly anticipated R300 graphics chip, dubbed the Radeon 9700, and with it came great expectations along with a fair amount of scepticism; after all, ATI has never previously supplied flight simmers with the quintessential video card. Troubles with display anomalies and sleepy performance have meant that a great majority of serious simmers remain loyal to nVidia and its GeForce line of boards. Does the Radeon 9700 have the substance to dethrone nVidia's current winner, the GeForce4?

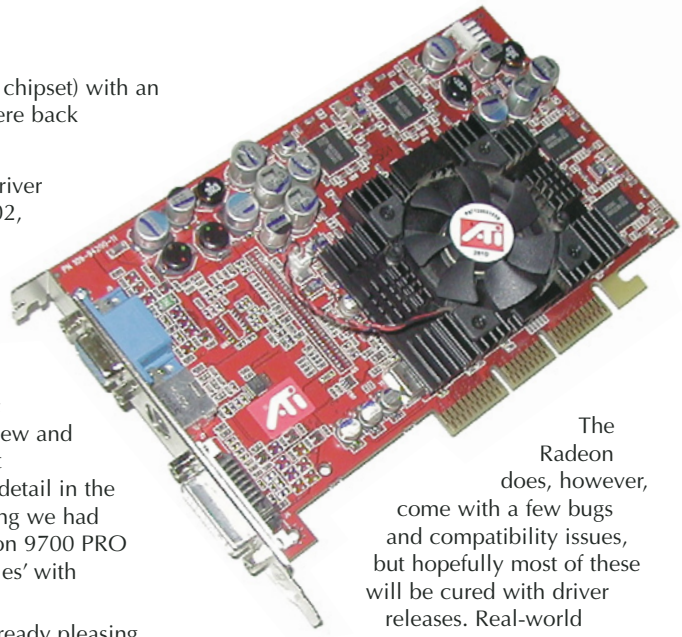
The retail package offers nothing more than the necessary components – an S-video or composite connector for TV/VCR usage and a DVI-I connector for digital CRT or flat panels are provided along with the power connector required to feed the voltage-hungry 9700. The driver CD is also bare bones, serving up only DirectX 8.1 and RealOne Media Player as bonus software, but installation is refreshingly straightforward, thanks in part to the clearly detailed 20-page manual.

Comanche 4, X-Plane, CFS2, and 3DMark 2001SE performed flawlessly and with excellent graphics, even without enabling anti-aliasing or anisotropic filtering. Admittedly, the excitement was mounting as we prepared to push this envelope.

Launching FS2002, we were rudely greeted with an instant lock-up. Time after time we endured this punishment, regardless of BIOS settings, chipset drivers, and newer Radeon drivers that had just been released. It simply could not or would not run FS2002 on the MSI 645 Ultra (SIS 645 chip) motherboard, so we finally tossed it aside and installed a Shuttle AK31 (VIA KT266A chipset) with an Athlon XP 1600 and we were back in the game.

Diving head first into the driver utility before starting FS2002, we set anti-aliasing to its 6X maximum, complementing it with 16X anisotropic filtering. The initial view out of the cockpit window was extraordinary; snapping into spot plane view and panning around the aircraft displayed a sharpness and detail in the graphics far beyond anything we had previously seen. The Radeon 9700 PRO cures those annoying 'jaggies' with absolute precision.

Adding sweetness to the already pleasing visual treat is the virtually undetectable loss in performance, which is certainly what separates the Radeon 9700 from any previous graphics card. The numbers in the chart reveal the crux of the Radeon's attributes; it simply overwhelms the competition once the eye-candy features are enabled. The ATI board barely broke a sweat at 6X anti-aliasing, while the GeForce4 was choking even at 2X, with the exception being Comanche 4. Higher resolutions yielded similar results; the 9700 gave 26.8 FPS at Meigs in 1280x1024x32 and 6X anti-aliasing, which is simply astounding considering the settings. Everything within the Display Settings menu was fully to the right or ON except: Ground Shadows, Dynamic Scenery, Maximum Visibility (60), and Cloud Density (50).



The Radeon does, however, come with a few bugs and compatibility issues, but hopefully most of these will be cured with driver releases. Real-world weather in FS2002 was one area that created system crashes in Windows XP, along with several third-party aircraft (particularly ones with high polygon counts) when viewing them externally. Additionally, there is no 16-bit colour anti-aliasing support, so if your sim doesn't function in 32-bit colour you won't benefit from the gorgeous rendering of SMOOTHVISION 2.0.

6X anti-aliasing – astounding graphics without missing a beat

Despite these nuisances, the Radeon 9700 PRO is without doubt the new champion. Expensive it may be, but if you crave stunning 3D imagery along with outstanding performance, and are willing to endure a few growing pains, this graphics solution is the one to have. ■

Greg Gott

Test system	AA OFF		2X AA		4X AA		6X AA	
PHNL*	24	24	21	24	19	24	NA	24
Meigs**	42	39	28	37	27	37	NA	36
Comanche4	35.57	33.80	34.21	32.97	27.35	34.27	NA	7.67
3D Mark 2001SE	8840	11373	7057	10654	4190	9363	NA	8001

* PHNL is a benchmark flight test over Honolulu taken from spot plane view

** Default Meigs Field flight, from the cockpit

Test comparisons (GeForce4 4600, Radeon 9700) @ 1024x768x32

Review Score

Manufacturer: ATI

Price: Around £300.00

Website: www.ati.com

At a glance: ATI finally deliver a world-beater, but one with a few minor bugs nonetheless.

Logitech Freedom 2.4 Cordless Joystick

Cordless convenience

Manufacturers of PC peripherals, and gadgetry in general, seem to think that pretty much anything can be made instantly desirable if it's constructed out of a pleasing combination of shiny metal and something black. And they're absolutely right. First thoughts on lifting the Freedom 2.4 from its box were that it's a handsome-looking joystick, and this was shortly confirmed by the first two visitors to clap eyes on it, who immediately noticed it sitting on the desk wearing rather a smug grin on its sleek and stylish face. Their effusive compliments proved that the Freedom 2.4 at least looks the part, from its rubberised base to its aluminium trigger.

It's also cordless (the 2.4 in the name referring to the 2.4GHz radio frequency technology), which makes it simple to put out of the way when a little more desk space is required. Cordless peripherals may not be a priority for everyone, but there's a lot to be said for just moving something aside without having to untangle any wires – as the growing popularity of cordless mice has proved. The only lead involved here runs from a USB port to a receiver, itself hardly bigger or heavier than a matchbox.

Logitech claim that the unit will function up to a distance of twenty feet from the receiver, and although we didn't get quite that far from our PC, it worked perfectly at distances well in excess of what any sane person might require, even with the receiver tucked away out of sight behind the desk. Expect to get around 50 hours of flying before you have to change the three (included) AA batteries in the base of the joystick. Both the base of the stick and the receiver are equipped with illuminated status indicators, with the one on the base blinking red to let you know when the batteries are on their way out.

The stick is comfortable to hold; the rubberised base should be plenty wide and stable enough to keep it secure for all but the most hamfisted, and the neat aluminium throttle lever has a pleasing amount of resistance. Along with the trigger and an eight-way POV hat switch are a further nine numbered programmable buttons – four rubberised ones on the top of the stick, four plastic ones on the base and one which sits perfectly behind your thumb. Programming the buttons and creating game profiles is the work of a moment, thanks to the Profiler software's intuitive graphical interface; profiles for most flight sims are actually already available to download from Logitech's website. The stick twists to provide a rudder function, and axis, throttle and twist parameters are easily fine-tuned.

You'll find joysticks sporting a more extensive array of features if that's what your flying demands, but if you're looking for a mid-priced unit with cordless ease of use, attractive looks, and excellent functionality with a minimum of fuss, the Freedom 2.4 fits the bill perfectly. ■

Richard Parnell

Review Score

Manufacturer: Logitech

Price: £49.99

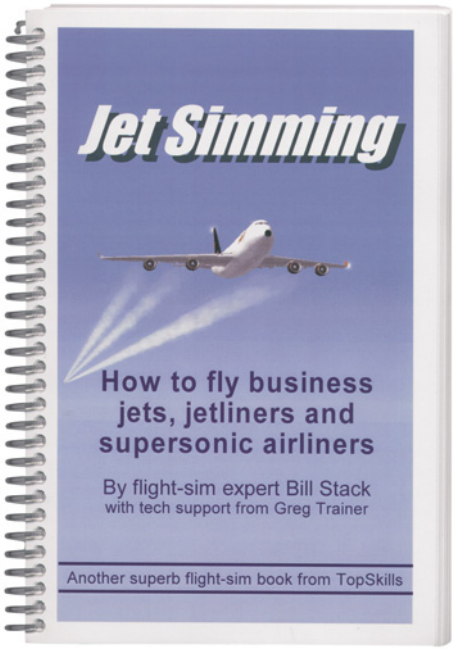
Website: www.logitech.com

At a glance: Visually pleasing, functions superbly, and it'll never get in your way. Guaranteed for two years.

System Requirements: Windows 98/2000/ME/XP, USB port, 64Mb RAM, DirectX 7.0 or higher

Jet Simming

A turbine tutorial


Jet Simming
How to fly business jets, jetliners and supersonic airliners
By flight-sim expert Bill Stack
with tech support from Greg Trainer
Another superb flight-sim book from TopSkills

Jet aircraft can be a major challenge for the flight sim pilot, but the latest in Bill Stack's series of tutorial books should prove a godsend for those who wish to progress to flying some of the most complex aircraft available to the simulator pilot. The point is made in the preface that flying jets will be considerably more rewarding, and correspondingly far less frustrating, if you are already familiar with basic flight manoeuvres, charts, and instrument procedures – sensible advice if you've ever sat on a runway in a 747 while an increasing sense of bewilderment sweeps over you.

The linear structure of *Jet Simming* means that you'll be fully aware of the challenges and fundamentals of jet flight well before tackling the final chapter on flying supersonic jet airliners. Performance speeds, panels and instruments are all explained in depth before the chapter devoted to flight planning and preparation, and you'll soon feel sufficiently enlightened to progress to flying business jets, jetliners and – for many of us the ultimate challenge – Concorde.

Most of the information in *Jet Simming* is not specific to a particular simulator, although FS2002 obviously makes a regular appearance; what you do get from this book is solid procedural guidance and detailed information which can be applied to jet flying in your simulator of choice. The downside of this approach, however, is that certain of the more complex cockpit features now modelled in the latest generation of incredibly detailed add-on packages are largely ignored. This is a valuable general reference tool nonetheless, and should give you the confidence to fully explore the intricacies and idiosyncrasies of your favourite jet sims.

Completing the book are over a dozen checklists covering the stages of a jet flight and numerous exercises. Large spiral binding and the A5 size make perfect sense for a book of this type, and while jet veterans might find themselves skipping over some of the chapters, there are many of us who'll find *Jet Simming* provides an ideal solution to the gaps in our knowledge. ■

Joe M. Besser

Review Score

Publisher: Bill Stack & TopSkills

Price: $22.95 (£15.00 approx.) + $11.00 p&p (£7.00 approx.)

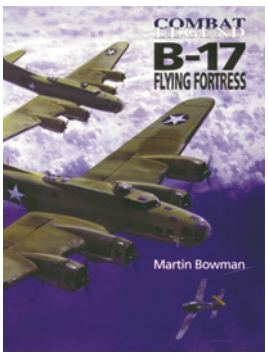
Website: www.topskills.com/flitsim.htm

Author: Bill Stack

At a glance: Not cheap, but does the job admirably. A useful reference source for the aspiring jet pilot.

Airlife Combat Legend Series

Concise and classy



Three of the first four books in this new series are devoted to aircraft whose legendary status derives from the significant role they played in WWII: the B-17 Flying Fortress heavy bomber, NAA's P-51 Mustang, and the Luftwaffe's principal fighter, the Messerschmitt Bf 109. The other features Lockheed's awesome SR-71 Blackbird, the extreme-altitude strategic reconnaissance plane that dominated Cold War intelligence gathering until it was superseded by satellite technology. While there's no shortage of aviation books devoted to one particular aircraft, there are several good reasons why these deserve a closer look.

With the price of an average paperback novel creeping up towards a tenner these days, £9.99 for a book containing an extensive and well chosen selection of photographs is a bargain; the full-colour profiles and images of variants are particularly worthy illustrations. Each volume covers the development of the aircraft and the history of the prototypes, their operational history, the people who designed and flew them, and the particular significance of each aircraft in aviation history. Some thoughtful appendices detail weapons systems, model production history, museum pieces and surviving aircraft, suggestions for further reading, and even model kits.

The cover blurb describes them as "perfect introductions", which doesn't really do justice to the contents; whether you use the index to dip into various sections, or read them straight through from cover to cover, each 96-page volume should be informative enough for the enthusiast who doesn't require the definitive work. Expect the other volumes in the series so far – Spitfire (Marks I to V), Fw 190, F-15 and Lancaster – to be equally enjoyable. ■

Joe M. Besser

Review Score

Publisher: Airlife Publishing

Price: £9.99 each

Website: www.airlifebooks.com

Authors: Various

At a glance: Thoughtfully produced, with an excellent selection of pictures. All the information many of us are likely to need, and at a very reasonable price.

Let's face it, time isn't on their side...

Search and Rescue, it's as simple as that.

Stand by for the third instalment in the highly successful and critically acclaimed Search & Rescue series. Your job is simple. You fly one of three authentic rescue helicopters, learn the ropes and then lead the hazardous missions and rescue those hapless victims! Do not prevaricate, take decisive action and do it now. It is a matter of life or death. Search & Rescue 3 is available for your PC now from all good retailers.

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Scenery to Fly For!

Had a Picnic here

Perhaps the largest and most detailed upgrade ever seen for Microsoft's Flight Simulator 2002 – over 1.6 Gb of photographic detail in this region alone!

M25/M4 Junction – Full Integration with existing FS2002 airports

Shoreham – Optional realistic sea textures included plus free bonus mesh terrain bringing even more realism to your cross-country flights!

* Farnborough – Fly over your own street, school or office... See local landmarks as they appear from the air, at higher than 5m per pixel resolution!

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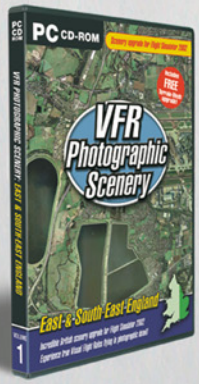

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